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A System of Health Care Delivery

VOLUME III

Selecting Patients for Treatment

Follow-up

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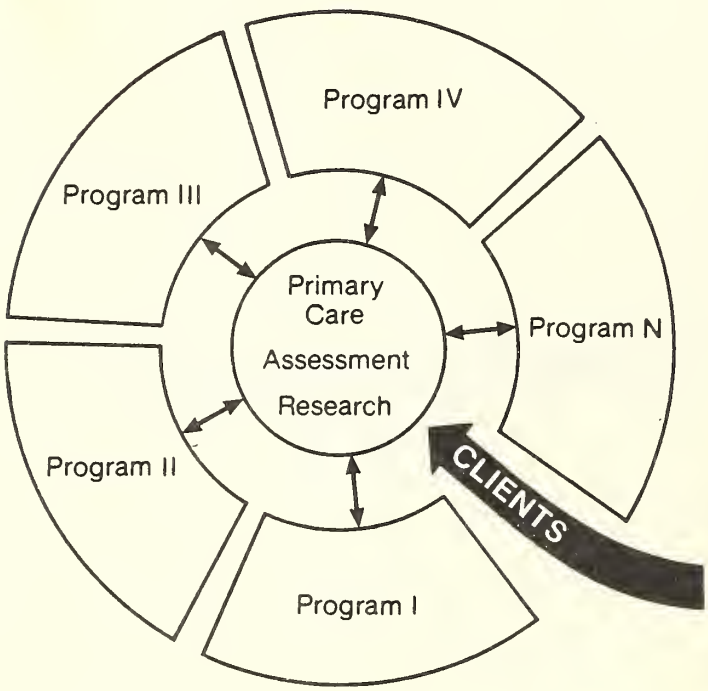
A SYSTEM OF HEALTH CARE DELIVERY

VOLUME III

Core-Shell Treatment System



A SYSTEM OF HEALTH CARE DELIVERY

by

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VOLUME III
Selecting Patients for Treatment
Follow-Up

ADDICTION RESEARCH FOUNDATION
TORONTO

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Canadian Cataloguing in Publication Data

Addiction Research Foundation of Ontario.
A system of health care delivery

(Working paper series, ISSN 0708-5133)
Contents: v. 1. Implementation of the system, Medical and educational components, Computerized information systems - v. 2. Primary care assessment - v. 3. Selecting patients for treatment, Follow-up.

Bibliography: p.
ISBN 0-88868-093-7 (set) - ISBN 0-88868-094-5 (v. 1) - ISBN 0-88868-095-3 (v. 2) - ISBN 0-88868-096-1 (v. 3).

1. Addiction Research Foundation of Ontario - Administration. 2. Medical care - Ontario - Toronto - Evaluation - Case studies. 3. Health services
I. Glaser, Frederick B. II. Title. III. Series: Working paper series (Addiction Research Foundation of Ontario).

RA983.T62A32 1984 362.1'2 C84-098324-7

SFP 6 1984

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T6 A32
1984
v.3

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To the memory of

FRANK J. MACDONNELL
1933 -- 1983

RUTH L. SEGAL
1942 -- 1984

Born of the sun they traveled a short while toward the sun,
And left the vivid air signed with their honour.

--Stephen Spender

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PREFACE

There are two roads which lead people to their reformation: one is through their own misfortunes; and one is through the misfortunes of others. The former is the more direct, but the latter is the less painful. We should thus always be aware of the latter, for thereby we can, without injury to ourselves, gain a clearer view of the best course to pursue. The knowledge derived from a study of history is the best of all educations for a practical life.

--Polybius

(c. 205 -- c. 123 BC)

Not so very long ago the question how best to deliver health care services was a non-question. It did not need to be asked, since the answer was presumed to be known. Health care services were a commodity, to be bought and sold in a free and unrestricted marketplace by those possessing the requisite wherewithal. Physicians were the sole significant purveyors of the commodity, and their knowledge and authority were considered unimpeachable. The same "invisible hand" which Adam Smith had argued guaranteed both equity and quality in the economy at large was confidently believed to provide similar assurances with respect to health care services. There seemed to be no point in questioning what appeared to be working well.

Over the last few decades there has been a notable erosion in this position. In many jurisdictions health care services are now considered a fundamental right for all persons, and universal entitlement thereunto is considered a principal responsibility of government. Legions of nonmedical personnel have appeared on the health care scene, and while a crucial role still tends to be granted to the physician, a leading medical periodical nevertheless editorializes that health care "has to be provided by a panoply of competent functionaries, each aware of the existence of the other, and all integrating their services for the maintenance of health" (1).

Responsibility for the assurance of equity and quality in health care is increasingly vested in external review bodies, including importantly the courts and governmental committees, with rapidly escalating demands for explicit accountability. Whatever the cause may be of these changes, and whether they are to be viewed with approbation or alarm, is much debated. But one conclusion at least is clear: the question how best to deliver health care services has emerged as a significant and even a pressing question.

It is also an unanswered question. Unanswered questions being the provenance of research, it is less surprising than might be supposed upon initial consideration that the question of health care delivery is one with which the Addiction Research Foundation of Ontario has had occasion to grapple. While problems related to the use of alcohol and other drugs are in some respects different from classical medical problems, the delivery of health care services to clients is formally similar in both instances. Over time, the Foundation has made many contributions to issues of health care delivery. For example, it pioneered the development of nonmedical detoxification programmes for chronic abusers of alcohol, and has also carefully evaluated this innovation (2). It has devoted much attention to the development of programmes to provide services to alcohol and drug dependent employees within the context of their place of employment (3). It has explored in considerable detail the delivery of services on a province-wide basis to all persons in Ontario having alcohol and drug-related problems (4).

Thus the effort recorded in these pages is not inconsistent with other initiatives of the Foundation. It arose within the specialized context of the Clinical Institute, a major division with principal responsibility for research on treatment. One strategy adopted to fulfill this mandate has been to provide direct services, which are then utilized to study the effects of various treatments. Desirous of mounting a comprehensive research programme, the Clinical Institute has characteristically provided inpatient, out-patient and emergency services covering a broad spectrum of the medical and psychosocial interventions required by its target population.

Within such a setting it is natural that, in addition to the fundamental question of the efficacy of particular interventions, the further question of the optimal delivery of health care services should also arise. Among the responses to this further question in the Clinical Institute was the Core-Shell Treatment System Project, which had its inception in late 1975. The project sought to modify a model health care delivery system suggested for persons with drug and alcohol problems in another jurisdiction (5,6) and apply it to the treatment effort of the Clinical Institute. Hopefully, this system would not only rationalize treatment and improve its outcome, but would also provide support services to the research effort which was the Clinical Institute's principal assignment. Following a review of some basic conceptual issues (referred to as "phase zero") a multi-phase pilot project was carried out beginning in October, 1976 (phases I, II, and III). In phase I, the fundamental processes of primary care and assessment were separately implemented and studied. These two processes were then connected functionally with each other and with Institute treatment programmes for phase II of the study. Phase III considered the operation of the treatment system on weekends.

While a number of publications drawing upon this experience have appeared in the literature (see Appendix), they have dealt primarily with broader issues and have drawn only sparingly upon the wealth of detail generated by the project. This level of information has hitherto been available only in the internal publication (or substudy) system of the Addiction Research Foundation (primarily substudies #962, #1035, and #1058). As knowledge of the work has been disseminated, there has been an increasing demand for greater detail. The demand has come primarily from those planning to emulate the approach taken by the project. Moving along similar lines, various groups have raised a plethora of specific questions not dealt with in the published materials.

The three volumes of *A System of Health Care Delivery* have been prepared in the hope that they might deal with just such specific questions. They constitute a comprehensive account of every aspect of the work. Their contents are drawn primarily from the reports of phases zero, I, II, and III of the pilot project. However, four additional substudies (#840, #1006, #1045, and #1085) and one

unpublished manuscript have also been included. Six entirely new chapters have been prepared, covering relevant developments subsequent to the completion of phase III, and rounding out the picture of a comprehensive treatment and treatment support system. Included is detailed information on such critical elements as a basic assessment package, medical screening, computerization, and follow-up technology, as well as the more recent functional dimensions of certain elements of the system. In several instances existing chapters have been rewritten, though the main thrust has been to preserve the language and thought of the originals, warts and all. For the convenience of the reader, the material has been completely reorganized so that everything relevant to a particular subject (e.g. primary care, assessment, etc.) appears together and in a logical developmental order, rather than being scattered through different substudies.

It would be immodest in the extreme to imply that, consequent to a perusal of this material, the question how optimally to deliver health care services will have been definitively answered. To such a question there is very likely no definitive answer, only relative answers which are highly dependent upon particular times, places, situations, resources, and goals. So it was in the Clinical Institute. Following the completion of phase III, certain elements of the model system were adopted and incorporated into the administrative structure of the organization, principally those which served best to support the individual projects which are the Institute's main focus of research activity. The system as a whole, particularly as envisioned in some of the early conceptual papers, was never implemented as such.

Therefore it should be quite clear that these three volumes constitute not an endorsement of a proven method of procedure, but merely a contribution toward the resolution of the contemporary problem of health care delivery. As a record of what was thought and what was done, the volumes are presented in the spirit of Polybius (see above). Experience has amply documented that other groups in other settings will pursue a similar approach. One may also note that, generically, the application of what is variously called systems science or operations research to health care delivery problems, of which this work can be considered an example, is widely prevalent (e.g. 7,8). Coupled to this should be the *caveats* that systems

approaches have particular problems of their own; and that definitive evidence that a systems approach to health care is superior to alternative approaches is lacking, since a sufficient number of critical experiments comparing different methods of health care delivery have not been carried out. Nevertheless, those who participated in the work of the project remain impressed with the potential of the approach it embodied. They hope that, by making the project's experience more readily available, others may be enabled to build upon its strengths, and to avoid its errors.

In addition to the authors, some two dozen staff of the Clinical Institute were directly involved in the operations of the three pilot phases of the project. Many more staff were less directly involved. Without the active assistance of all of these people, the work which resulted in these three volumes could not have gone forward. A particular acknowledgement is due to Dr. James G. Rankin, who was Director of the Clinical Institute throughout the life of the project. Innovations always require energetic support from the apex of authority. This he unstintingly provided.

Frederick B. Glaser, M.D., F.R.C.P.(C)
Formerly Project Director
Core-Shell Treatment System Project
November, 1983.

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SELECTING PATIENTS FOR TREATMENT

Chapter One

ANYBODY GOT A MATCH?*

Treatment Research and the Matching Hypothesis

by Frederick B. Glaser

Marriage and hanging go by destiny;
matches are made in heaven.

-Robert Burton, The Anatomy of Melancholy

That it is the course of wisdom to assure the greatest degree of complimentarity between particular problems and the means employed to remedy them is, at first glance, neither a novel nor a radical idea. Medical practitioners who have sworn to uphold the oath of Hippocrates, for example, have subscribed to it. In refusing to cut for the stone themselves, and deferring to those more skilled in this art, they have recognized that the therapeutic armamentarium of each individual physician cannot be expected to contain all that is required for the practice of medicine. Referral to others whose techniques are more appropriate to the needs of a given patient may be essential. Medicine, in large measure, is built upon the priciple of differential diagnosis followed by differential treatment.

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*Note: An abridged version of this paper appeared in Edwards, G. and Grant, M. (Eds.): *Alcoholism Treatment in Transition*, London, Croom Helm, 1980, pp. 179-96.

So, too, are built many other bodies of applied knowledge which deal with human behaviour. In corrections, for example, one finds the precept of *The Mikado* "to let the punishment fit the crime." Educational theorists discourse upon the need to tailor teaching styles to the variable learning proclivities of different groups of students. Merchandisers design advertising campaigns particularly to affect groups which they have reason to suspect will be susceptible to special blandishments. Thus the search for an appropriate match goes on in many areas. When one is found, its happy results often contrast starkly with its comparative rarity, lending credence to Robert Burton's melancholy assertion.

Nevertheless, as is the case with so many other sound ideas, the notion of suiting the remedy to the problem is often more honoured in the breach than in the observance. The simplicity, convenience, and indeed glory of possessing, or more usually believing that one possesses, a single remedy suitable for all problems, often proves in practice to be too tempting to avoid. To use medicine once again as an example, physicians often seem to disregard what they have learned and fail to act as if the precepts of humility and shared responsibility implicit in the Hippocratic oath were guiding their behaviour:

> The assumption is that the registered doctor or surgeon knows everything that is to be known and can do everything that is to be done. This means that the dogmas of omniscience, omnipotence, and infallibility, and something very like the theory of the apostolic succession and kingship by anointment, have recovered in medicine the grip that they have lost in theology and politics (1, p. 7).

In what follows, some general aspects of the search for specific ways of dealing with specific problems will be discussed. Though this discussion is pertinent to, and will draw upon, several different fields, it will ultimately focus upon the field of alcohol studies, and an examination of some evidence for specific interactions will be undertaken. Finally, a particular way of structuring treatment and treatment research in this area which may facilitate further investigations of these interactions will be described.

The Matching Hypothesis

General Considerations

A judicious analysis of human nature holds that "Every man is in certain respects (a.) like all other men, (b.) like some other men, and (c.) like no other man" (2). Most interventions designed to alter (and usually to ameliorate) human behaviour take their point of departure from the first two of these three assertions.* Therefore, the question narrows to whether all persons manifesting a given type of behaviour are to be dealt with in the same way, or whether they are to be divided on some basis into groups and each group dealt with in a different way. The question is not whether similarities and differences between individuals exist -- they both do -- but which is prepotent in determining the outcome of treatment.

Dissatisfaction with Uniform Treatment Approaches

In most circumstances at the present time, the similarities between individuals are assumed to be prepotent, and hence all individuals presenting are dealt with in the same way. Thus all students in a given school, all offenders in a given correctional facility, and all patients in a given treatment setting for psychological problems, drug dependence problems, alcohol problems, and even medical problems, tend to be dealt with in exactly the same manner. There is something to be said for this. Since everyone gets the same thing, the delivery of service is far less complicated. In addition, a few of the problems which beset people, even those with protean manifestations (syphilis and tuberculosis are examples in the medical area) do have an underlying single etiology and can be effectively dealt with using a restricted range of interventions. But whether this is generally true is another matter.

*From an instrumental point of view, the elaboration of a *totally* novel and unique intervention for each individual, which would seem to follow logically from the third assertion, seems a practical impossibility under most circumstances. Preconceived interventions in which practitioners have received at least a modicum of training are required for a timely response.

Definitive evidence on this point is not plentiful, which is perhaps why the matching hypothesis in most fields remains an hypothesis. Yet in certain instances, such as with respect to alcohol problems, controlled experimentation has suggested that the results of uniform intervention applied across the board are no better than those which might be achieved with minimal intervention (3). Such work as this gives weight to a growing consensus that the *differences* between groups of people are of the greatest importance in terms of the outcome of various kinds of interventions, and hence that those interventions ought not to be uniform. Specimen statements culled from several fields give emphasis to this point:

> *MEDICINE:* ...every patient is different. Nonetheless, the usual clinical study considers broad diagnostic categories, with the implicit assumption that treatment for all patients in the category should be uniform. If the patient is diabetic, alcoholic, taking other medications, older, younger, frightened, unreliable or otherwise different from the study-group mean, the appropriate treatment may well vary. Legal, professional, administrative and sometimes patient-generated forces have acted against practice of the art of medicine -- against management decisions tailored to the individual patient (4).

> *EDUCATION:* The major reason for the lack of cumulative knowledge...has been the failure to take seriously the implications of an interactive model that coordinates the effects of educational environments upon different types of students to produce specific objectives. Individual differences are given much lip service, and even more drawer space in the form of filed test results, yet educational planners and decision makers continue to work from models of the student-in-general. To ignore the importance of differential student characteristics leads to questions about the general effectiveness of educational procedures, such as whether a discovery approach is more effective than a structured approach. No account is taken of the differential effectiveness of such approaches on different kinds of students (5, p. 1).

> *CORRECTIONS:* One of the few agreed-upon "facts" in the field of corrections is that offenders are not all alike; that is, they differ from each other, not only in the form of their offense, but also in the reason for and meaning of their crime...the implication follows that attempts to change the offender into a non-offender will vary in ways which are relevant to the cause. Ideally, the goals of treatment will relate in some direct manner to the causes of the delinquency, and the treatment methods will relate specifically to the goals for the various offender subgroups (6).

PSYCHOLOGY: Far from being relatively homogeneous, patients coming to psychotherapy are almost surely quite heterogeneous -- are actually more different than they are alike. The assumption of homogeneity is unwarranted since on just about any measure one could devise (demographic, personality, ability, etc.) these patients would show a remarkable range of differences. This is apparent from clinical experience and from much of the evidence on initial patient characteristics that is available today...If psychotherapy is differentially effective depending on initial patient differences, as the evidence strongly suggests, then it seems clear that research should take these differences into account (7).

DRUG PROBLEMS: Because of the great variability among today's addicts there is need for treatment programs based on a hierarchy of goals ranging from maintenance on drugs to total abstinence from drugs. Achievement of such goals requires a total program in which a wide variety of therapies are used. There must be constant evaluation of each aspect of such a program with willingness to discard or modify the unsuccessful and to accept new approaches as they emerge (8).

ALCOHOL PROBLEMS:...most studies consider alcoholics as a unitary group, thereby tacitly assuming within-group homogeneity. If a group average personality profile does not adequately represent most patients classified as alcoholics, then analyses using a group profile could wash out meaningful individual variance...Certainly, the most important finding in this study is that there are many distinct types of alcoholic patients widely differing in personality and psychopathology...this...may prove useful during hospital intake for classifying and then channeling patients into optimal treatment programs (9).

ALCOHOL PROBLEMS: The population of persons with alcohol problems is multivariant. Correspondingly, treatment services should be diverse, emphasizing the development of a variety of services, with determination of which treatments, delivered in which contexts, are most effective for which persons and which types of problems (10, p. 5).

Although work on the matching of clients and interventions is further advanced in some of these fields (medicine, education, corrections) than others, it is evident that similar principles apply across fields and that a matching approach is seen as generally promising. Conversely, accompanying the prevalence of uniform approaches in each area is a general pessimism regarding the efficacy of human therapeutics. Teachers, counsellors, corrections officers, physicians, and indeed all those who can broadly be defined as clinicians or human service workers tend to "burn out" after several years of practice, frustrated in their efforts to induce

significant changes in the great majority of those entrusted to their care. Uniform approaches to complex problems rarely produce satisfactory results in more than a small proportion of cases (11). A larger proportion will either be unchanged or actually worsen. This general phenomenon has been informally enshrined as the Rule of One Third. Evidence that the cynicism about treatment which it embodies tends to seep downward into basic training (and perhaps become a self-fulfilling prophecy) is provided by the following bit of medical student doggerel:

> Some do better, some do worse,
> Some remain the same;
> It scarcely seems to matter much
> Just how one plays this game (12).

In addition to being generally ineffective, uniform approaches to complex problems may compound therapeutic pessimism by disguising or obscuring significant interactions between particular subgroups and the treatment being provided. It is more than coincidental that, when two or more interventions are compared with each other, the most common result is a tie (3, 13-15). While the theoretical possibility exists that this may reflect unrecognized but common effective factors in all interventions (16-18), a more likely explanation is that the assumed homogeneity of the target population is illusory. If the population being treated is in fact heterogeneous, but is dealt with as if it were homogeneous, those variables which are critical for successful client-treatment interactions for both forms of intervention will tend to be uniformly distributed in the differing conditions of the experiment, and the results in each condition will be the same for that reason (11). This phenomenon was singled out, for example, in a critique of correctional programmes:

> Both studies showed that by lumping together all kinds of offenders, the beneficial effects of the treatment program on some individuals, together with the detrimental effects of the same treatment program on other individuals, masked and cancelled out each other. it is likely that, in many treatment studies, this masking effect has occurred because the data have not been viewed in sufficiently complex fashion or because the crucial dimension -- the classification of subjects in a treatment-relevant way -- was missing (6).

Even in studies which do *not* end in a tie, but which appear to demonstrate the superiority of one form of treatment over another, considering the population

homogeneous may lead to an incorrect interpretation of results. An excellent example was a carefully-controlled, double-blind study which showed that depressed patients did better on a major tranquilizer than on an antidepressant. Because the results were counterintuitive, the data was re-analyzed by the experimenters. It was found that, on the basis of a psychometric instrument given to all clients, the study population was not homogeneous, but consisted of three distinct groups. All were indeed depressed; but all differed on other critical dimensions. There was a highly significant interaction between the three subgroups and the medications, one group doing equally well on both, one group doing better on the antidepressant, and one group doing better on the tranquilizer. Since the group doing better on the tranquilizer was numerically larger, the mean results for the study population as a whole favoured that drug (19). This not only obscured what had actually happened but, if uncritically accepted, might have led to unfortunate clinical applications. Others have termed this phenomenon the tyranny of the mean; it is a common form of absolutism in treatment research, and will be further explored below. Careful matching of clients and interventions avoids this tyranny and at least has the potential for reversing the "burn-out" and therapeutic pessimism which arise from largely unsuccessful attempts at uniform treatment.

Variations of the Matching Hypothesis

At least three major variants of the matching hypothesis may be identified, each concerned with different aspects of the therapeutic situation.* Much work has been done on the match between *attributes of clients and attributes of therapists*, and has dealt with such matters as the personalities and moral values of the parties involved (20-24). A humourous example of this, though it represents an unintentional match, is the so-called YAVIS syndrome, an acronymic designation

*It is not implied that the possibilities discussed here exhaust the types of matches which may require investigation. They are only those most commonly investigated to date. If one asks what potential matches may be studied, the possibilities seem rich for future investigation.

suggesting a tendency of psychotherapists to select for treatment those clients who are young, attractive, verbal, intelligent and successful (25, p. 133). This type of match tends to downplay the specificity of the therapy and to emphasize the specificity of the therapist.

Another type of match is between *attributes of clients and treatment goals.* Such a match may be unintentional, in that it may be found upon retrospective examination of outcome data that certain types of clients achieved one goal (such as controlled drinking) more regularly, even though this was not an explicit aim of therapy (26, 27). On the other hand, the same treatment may be deliberately utilized to achieve different goals for different clients, such as in experimental work now in progress at the Addiction Research Foundation which utilizes a cognitive restructuring approach to achieve either a goal of abstinence or of controlled drinking. Perhaps more commonly, treatments and goals are assumed to be inextricably linked together; thus, the only drinking behaviour goal which Alcoholics Anonymous envisions for its members is total lifetime abstinence. This type of match tends to downplay the specificity of the therapy and to emphasize the specificity of the goal.

A third approach to matching seeks complimentarity between *problems of clients and specific capabilities of treatments.* The most obvious examples here derive from chemotherapy, in which specific antibiotics may be matched against specific invading organisms, or specific antidepressant agents may be matched against specific types or degrees of depression (19, 28-30). Some non-drug therapies are targeted upon clients with specific problems, such as family therapy and marital therapy. Others are not so targeted, since they are presumed to be useful for all clients. For example, in the treatment of alcohol problems, "group psychtherapy seems to stand supreme in the modes of treatment, even though it has never been proved or disproved that this necessarily is the best type of treatment to offer alcoholic patients" (31). Nor has the particular type of problem addressed by group psychotherapy been clearly specified. Nevertheless, it is possible to conceptualize group psychotherapy and other allegedly generally useful therapies as in fact addressing specific client problems, and hence to test them within the context of

this variant of the matching hypothesis (32). This type of match emphasizes the specificity of the therapy.

All three variants of the matching hypothesis are unquestionably important and worthy of further study. Indeed, there has been some tendency to examine them all simultaneously, in the hope that specific therapists using specific methods on specific clients might achieve specific goals. While this is doubtless a desirable goal, such interactions in practice may prove to be rather complicated, and it may be wiser to examine only a single kind of match at a time. In this regard the third variant seems somewhat more practical than the other two. Developing specific interventions which effectively deal with specific problems when deployed across a variety of interveners assures a broader applicability of treatment. Although in the past it has occasionally been possible to hire treatment staff whose personal attributes matched those of specific elements of the client population (e.g. 6), this seems less feasible in an era of militant fair employment practices.

The Need for Specificity

Irrespective of the type of match under study, it is clear that matching experiments require the *specification* of clients, therapists, interventions and goals, at least along those dimensions which are considered crucial to outcome. Unless this is done, it is difficult to know whether a match has occurred. For obvious reasons, particularly that of replication by other investigators, the simpler and more objective the specification of the variables, the better. An instructive example is the so-called A-B therapist match in psychotherapy (20). Initially, therapists were classified as A or B by their peers and colleagues. Subsequently, more precision was introduced by the deployment of psychological tests, such as the Strong Vocational Interest Battery. Review of these studies suggests a possibility of even *more* precise specification, in that the A-B difference may fundamentally reflect differences in functional cerebral hemispheric dominance. Dominance can be specified by such relatively precise measurements as dichotic listening tests.

As has been noted above, researchers in several different fields of human services have stressed the heterogeneity of client populations and the corollary that specification of these populations through processes of meticulous assessment and categorization is crucial to the advance of research. Much has been accomplised in the development of appropriate structured interviews, psychometric tests, and psychophysical and biomedical measures; here the situation, if not yet settled, seems fairly well in hand. Similar measures to those applied to clients may be utilized to specify therapists. The goals of treatment are not unusually difficult to specify, though this is all too infrequently done. Even when specified, goals are often couched in vague generalities which defy quantification. Nevertheless, the remaining problems in specification of treatment goals should yield readily to sustained effort.

Thus it is likely that specification of the intervention employed may prove to be the most difficult problem of all. Consider the difficulties faced by precise experimentation in such therapeutic modalities as individual and group psychotherapy, especially if large numbers of clients are to be studied. Such studies will require the development of quality control methods to assure the consistency of interventions both across interveners and over time. It will not be a simple matter. Some methods which could achieve such goals, for example the programming of computers to perform these kinds of interventions, are at present beyond the realm of the generally feasible. But some means will have to be developed to permit others to understand very clearly and to replicate with precision an intervention under investigation in a given experiment (33).

Directions for the Future

As is hopefully illustrated by the foregoing discussion, a picture emerges from past experience to guide future exploration of the matching hypothesis. In order to enhance the probability that a given experiment tests the hypothesis, sound theoretical reasons for supposing that a match exists should be explicated and, if possible, existing empirical data bearing upon the match should be brought forward to support its cogency. Provision should be made for all of the elements of the

match, including clients, therapists, interventions and goals, to be clearly, objectively, reliably and if possible readily specified. It will frequently be the case that the matching criteria will exclude from the experiment all but a small proportion of the clients who are seeking treatment. Thus provision should be made for screening a very large population in order to find those clients relevant to given research efforts. At the same time it is ethically mandatory to provide for the alternative management of those clients who are selected out, or who drop out, of treatment.

Once the treatment-seeking population is properly screened, characterized and classified, it should be randomly distributed among the conditions of the experiment. One of these should usually involve what may be termed minimal care. This is at once a more practical and a more ethical control condition than a no-care group, and it also provides a basis for cost-effectiveness studies. Sufficient time should be permitted for follow-up subsequent to treatment. Experiments will be more convincing if at least two clients samples, an original sample and a replication sample, are used. Consideration may also be given to sharpening the specification of the match following the initial analysis of data, and then replicating the experiment to see whether superior results can be achieved with more refined selection criteria.*

To say this is to say why there is a long way to go. Experiments conforming to the above specifications are rarely performed. Many practical difficulties stand in the way. At the close of these remarks, a systematic approach which facilitates the conduct of experiments of this kind will be briefly described. In the next section, evidence favouring the matching hypothesis in the particular field of alcohol problems will be explored.

*This strategy reflects the general view that an incremental accretion of knowledge, built up over a series of experiments, may be far more fruitful in the long run than any dramatic attempt to transfigure a given field with the blinding insights derived from a single brilliant experiment. Episodes of this sort belong more to the realm of fiction than science.

The Matching Hypothesis

Evidence from Alcohol Studies

Descriptions of the effects of alcohol are ancient; but scientific rigor in the study of these phenomena, and especially of how best to deal with them, is of comparitively recent origin. It is nevertheless true that the notion of matching problems with treatments is virtually coextensive with the scientific study of alcohol problems. In the course of an exhaustive review of what was then known about the treatment of patients, two pioneers in this area, Drs. Karl M. Bowman and E. Morton Jellinek, observed almost four decades ago that:

> ...the only possibility (of improving treatment for alcoholism) is to bring greater order into psychotherapeutic procedures. By this we mean that a definite effort has to be made to establish criteria for the suitability of any given method to a given patient; the criteria so far established are definitely superficial. A method for determining these criteria may be found in follow-up studies far outside the routine techniques and aims of the run-of-the-mill follow-up study. It is doubtful whether any such study could be carried out with the aid of such case histories as are now avaiable. In order to establish whether any correlation obtains, and of what nature, among success, type of treatment, type of personality and origin of addiction, personality studies and life histories are required of a type which will go far beyond those currently made. It would apear much more profitable to lay now the foundations of such a study, which can be evaluated only after several years, than to attempt immediately an evaluation on the basis of existing ineffectual data (34).

Insofar as the authors appear to be advocating a purely empirical, rather than an hypothesis-testing, approach to treatment research, one might quarrel with their suggestions; but in general their analysis of the problems existing and the measures required for remediation is as cogent today as it was in 1941. To give a brief example, comprehensive evaluation of all public alcohol treatment programmes in two large and disparate political jurisdictions in the United States, carried out by separate research teams, both concluded that insufficient data existed to ascertain the course of patients' problems, and that critical evaluation of treatment must await the elaboration of a much more thorough and systematic data base on all clients entering treatment (35, 36). Had the advice of Bowman and Jellinek been taken to heart when offered, such conclusions would have been unimaginable, and

treatment research would have achieved more than it has to date; the matching hypothesis, which they endorsed, would by now have been systematically explored.

But the matching hypothesis remains hypothetical. However promising it may be, it is yet unproven. At the present time, and in the absence of knowledgeable selection of clients for specific treatments, it is largely the case that those who have done well, do well. A recent and comprehensive review (37) underscores that the largest portion of the variance in client outcomes in most studies is explicable in terms of pretreatment client characteristics. Such findings, discouraging as they may be, do not tell the whole story. For the *amount* of variance explained by pretreatment client characteristics is not great. In a recent careful study of 429 clients seen at five different treatment facilities in the same geographic area, it was found that client characteristics accounted for only 15% to 33% of the variance. Looking at measures of degree of participation in treatment, which seemed initially promising, did not contribute much more to an understanding of the results. The authors concluded that "the most important question for further research is 'What factors "explain" the remaining 50%-80% of the variance in treatment outcome?' (38).

It remains to be seen whether the matching hypothesis will explain all or a major proportion of this variance, or indeed any of it. Very few direct tests of matching in the field of alcohol problem treatment have ever been undertaken. Data bearing upon it can be extracted (with some reservations) from studies designed to test other questions. In what follows four examples of experimental treatment research in this field will be explored for what light they can shed on the matching hypothesis. Although they are inconclusive, it is hoped that the promise which they hold for the future will be evident.

On January 1, 1950, an experiment was begun at Winter Veterans Administration Hospital in Topeka, Kansas. It addressed the differential treatment of chronic alcoholism. As described by the principal investigator, Dr. Robert S. Wallerstein (39, 40), it had two major purposes. The first was to see "whether any of the offered treatment programs should be the one of choice" (39, p. 228). In

particular, the drug disulfiram (Antabuse) had just entered the therapeutic lists with glowing endorsements, and the researchers wished to examine its effect, as well as to study other treatment interventions which had either received similarly positive reports (e.g. conditioned reflex therapy) or which they themselves found interesting and thought might be effective (e.g. group hypnotherapy). But what was described as "a second major set of hypotheses" (39, p. 228) had to do with differential treatment:

> Our effort to study the question of differential treatment indications was built into a research design which assigned patients randomly to the four selected modalities. This assumed that each treatment group would comprise a cross-sectional representation of patients with the gamut of psychiatric syndromes in which alcoholic excess is a major symptom. Our aim in this was to discover which kinds of alcoholic patients tended to improve with which kinds of treatments (40, p. 176).

Since in many respects this was an historic study, it is worth considering the investigator's notion of what was being matched (or rather in what areas a match was being looked for, since assignment was random). Not surprisingly, in view of the presence and influence in Topeka of the prestigious Menninger Clinic, a psychoanalytically-oriented treatment institution, the specification of the "match" was couched in psychodynamic terms:

> Within each program, the problem remains of ascertaining those kinds of alcoholic patients likely to be helped by its application -- and why. Our approach to this differential study has been in the assessment of the kinds of patients who are best able, in terms of their particular character configurations, to fit into these psychic demands. That is, we have postulated that each proffered therapeutic modality carries with it a distinct and different psychological impact, and further that the patient's therapeutic response will be determined in large part by the interaction of these specific psychological meanings with the psychological need-systems of the individual patient (40, p. 156).

In practice, this involved examining the match between psychiatric diagnosis and treatment modality. As noted above, Antabuse, conditioned reflex therapy, and group hypnotherapy were three of the treatments which were explored. The fourth was milieu therapy; it was originally intended to be a control condition for the other

three treatments, but demonstrated to the investigator's satisfaction that it had a distinct therapeutic character of its own. A total of 178 male in-patients were randomly assigned to the four conditions of the experiment, treated, and followed.

Although it will be appreciated from the foregoing description, as well as from other critiques of the study (e.g. 37), that methodological problems existed, the results were nevertheless quite instructive. No single treatment proved to be the treatment of choice:

> ...the Antabuse therapy program emerged as the most helpful to the most patients. Yet an important corollary conclusion was that the group of patients not helped by Antabuse constituted almost half of those to whom it was administered. Moreover, the number of patients helped with conditioned reflex therapy, with group hypnotherapy, and with the milieu therpay program was sizeable enough to preclude the blanket prescription of Antabuse as the optimal mental hospital treatment of the chronic alcoholic patient (40, p. 176).

There was a scatter of improvement rates across psychiatric diagnoses that is at least suggestive of matching effects (Table 1). For example, compulsive patients did well with Antabuse but quite poorly with hypnosis, while passive dependent patients did well with both Antabuse and hypnosis. These are outcomes which make intuitive sense. For both conditioned reflex therapy and milieu therapy, it proved possible to revise the classification scheme for patients in such a way that more precise matches were revealed. It was found, for example, that a *post-hoc* combination of several of the diagnostic categories into a bipartite classifcation of "less aggressive" and "more aggressive" revealed a marked discrimination in improvement rates in conditioned reflex therapy, the more aggressive patients showing much less improvement (Table 2). Similarly, when the use of psychiatric diagnoses gave little promise of predicting outcome in milieu therapy (Table 3), patients were reclassified according to a three-factor index based upon marital status, work adjustment, and sexual adjustment. The resultant "attachment factor" was highly correlated with improvement in milieu therapy (Table 4).

Of course, such retrospective restructuring of data may be somewhat suspect. But it at least represents a high degree of confidence in the cogency of matching

clients to treatments, which seems to have been generated by the study. In addition, and most importantly for progress in the field, the investigators showed a willingness to re-examine their original hypotheses regarding matching in the light of actual data. This did not stop with the type of restructuring outlined above; Dr. Wallerstein and his colleagues intended to push on to further experimentation:

> These tentative formulations and conclusions should...be refined and extended through the design of a successor project. The project we envision would be as much like the first as possible, except that patients would be assigned to specific treatment modalities, not on a random basis but through a selective process deriving from the conclusions of this first study. The personality dimensions which we have postulated to be of central importance would serve as the basis for the assignment of each patient to a particular program following his full psychiatric evaluation. A significant increase of favorable results in *each treatment modality* over that obtained when patients were randomly assigned would be a major measure of the validity of our evaluative criteria. This second project would be the logical sequel to the first undertaking, and would be crucial in evaluating the adequacies and deficiencies in our formulations (40, p. 178; emphasis in original).

Unfortunately, the successor project was never mounted, though this was not related to lack of confidence on the part of the investigators in its general conclusions (41). Nor was the impact of the study upon the field sufficient to secure its replication elsewhere. Dr. John Ewing commented that "most workers have ignored the leads of the Wallerstein report and relatively little progress in the direction suggested has been accomplished during the last decade and a half;" he wondered editorially when persons in the field were going to begin to learn from history (42). More recently he has deplored the fact that "further studies of this type have been slow to be accomplished and those responsible for developing treatment programs have tended to stick with the tried, but unproven, methods." As a remedy, he suggests that clients be provided with sufficient information to do their own matching (43).

Another major study of the treatment of alcoholism was launched about two decades later, and with some rather different consequences. Though of relatively recent date, it has already achieved a measure of fame and currency throughout the

world. While its considerable merits richly deserve this fate, its far-flung reputation may in part be an instance of the right thing happening for the wrong reason. Despite the rigorous precautions its authors took to avoid it, their study of 100 married male alcoholics in treatment by Dr. Griffith Edwards, Dr. Jim Orford and several colleagues (3) has widely been understood to have proven, at long last, what everyone always "knew:" that the treatment of alcohol problems does not work.

Essentially, the 100 or so married male clients in this study were randomly assigned to a control and an experimental condition. The experimental group received what is referred to as an "average package of help," thought by the authors to be congruent with a relatively good level of the standard sort of treatment generally available to alcoholics in the Western world. It often began with a period of in-patient treatment, and was followed by various out-patient treatments of differing length and complexity. The control group, on the other hand (following the careful initial assessment performed for research purposed on both group of clients), received only a single session of fairly general advice, along the lines that it would be best to cease drinking and to be nicer to the missus. An admirably stringent analysis demonstrated that the two groups were similar, both in terms of their pre-treatment characteristics and their experiences in the period between treatment and follow-up. Multiple criteria were utilized in assessing outcome. A representative sampling of a number of these criteria, with the results, is reproduced in Table 5. The overall outcome for those who received treatment was no better than for those who received advice.

In discussing these results, the authors did not interpret the study as reflecting negatively upon treatment. Rather, they felt that it illustrated "a need for development of new treatment techniques and their rigorous testing" (3, p. 1028). "The implications of this study," they cautioned, "must not be seen as nihilistic. In an area of health care so much in need of development it would be sad indeed if a research report were misread as evidence that the treatment of alcoholism must forever be a worthless enterprise" (3, p. 1027). And they specifically noted that "a reservation which should properly attach to any too absolute interpretation of a

clinical trial is that conclusions based on the averaging process and simple comparisons of group means may fail to bring out important patient type -treatment modality interactions" (3, p. 1027). In other words, the tyranny of the mean might be in evidence.

On reflection, the most appropriate interpretation of this study would appear to be *not* that treatment is no more effective than advice, which seems to be the way in which it is commonly understood; but rather that, if the *same* treatment is indiscriminately applied to all patients, the results on balance do not improve upon the results achieved by advice. The latter interpretation leaves open the possibility that a more discriminate matching of clients to interventions might have produced improved results, whether in the advice or in the treatment group.

An inspection of *two*-year follow-up data on clients from the same study (27) strongly underscores this possibility. While the numbers involved are quite small, it appears that there were clearcut differential results for different kinds of clients in the two conditions of the study. Those diagnosed as dependent or gamma alcoholics achieved much better results in the treatment group, while those otherwise diagnosed tended to do much better in the advice group (Table 6). In addition, there was an interaction between the types of clients and the goals they achieved, with the gamma alcoholics achieving good results through abstention and the others tending to achieve good results through controlled drinking (Table 7). In their explication of these findings, the authors comment on the intricate relationships which may have obtained between the type of patient, the type of treatment, and the treatment goals:

> These relationships are in all probability a function of the abstinence orientation of the family alcoholism treatment programme. It may reasonably be hypothesized that, when treatment is abstinence oriented, low-symptom excessive drinkers, with a high potential for controlled drinking, will benefit from only brief contact with treatment. Indeed they might benefit from no contact at all. High-symptom excessive drinkers, on the other hand, with a relatively low potential for controlled drinking, benefit most from relatively intensive contact. These relationships would not be expected if treatment was oriented towards controlled drinking. Under these conditions, low-symptom excessive

drinkers would certainly be expected to benefit from intensive treatment contact (27, p. 417).

Such formulations, which are expressions of the matching hypothesis, would hardly be expected from workers who felt they had definitively proven the lack of efficacy of treatment in alcoholism. They arise from the same set of data which has been interpreted by some in so negative a manner. Rather than tolling a death-knell for alcoholism treatment and treatment research, this data could well form the basis for a successor project to the original project, much in the same manner as the data from the Wallerstein study, in which the results of the initial effort were tested directly in a subsequent effort. By providing so promising a lead to additional experimentation, and by providing a further elaboration of the implications of their "advice" group (44), the authors have convincingly underscored their assertion that there is "a need for the development of new treatment techniques and their rigorous testing" (3, p. 1028).

Another recent experimental study in the treatment of alcohol problems both supports the cogency of the matching hypothesis and illustrates the tyranny of the mean. Patients hospitalized in a regional alcoholic unit in England were administered the Beck depression inventory, with those scoring 15 or more (when free of drugs and/or alcohol) being classified as depressed alcoholics. All patients, whether depressed or not, were then randomly assigned to either a placebo condition or to treatment with a sustained-release form of lithium carbonate. Both patients and therapists were blind to diagnostic category and treatment. Patients were followed in a special clinic where their blood levels of lithium were checked at six-weekly intervals and were adjusted as necessary to maintain them within the known therapeutic range. Results in patients continuing in the study for an average of 41 weeks on one of the outcome criteria, mean number of days spent drinking, are reported in Table 8 (29, 30).

Those patients who received lithium spent less than half the number of days drinking than did patients who received the placebo. Though this difference is not statistically significant an embattled family might well appreciate an extra 11.2

days per year free of drinking behaviour. Given such considerations, and categorical statements from the prior literature to the effect that "lithium appears to have marked and statistically significant beneficial effect on chronic alcoholics" (45, p. 21), the uncritical acceptance of the mean data from this study might have resulted in the widespread dosing of alcoholics with lithium.

The balance of the data, however, illustrates the fallacy in this approach, and the cogency of matching the use of lithium to the objectively-determined degree of depression. In patients who were depressed according to the criterion employed in this study, there was a highly significant reduction (thirty-seven fold!) in the number of days spent drinking. Nondepressed patients actually spent a *greater* number of days drinking when on lithium.* Thus the favourable results achieved by lithium in this study can be entirely explained by its effect in depressed alcoholics. Its adminstration to nondepressed alcoholics appears to make matters worse, and its widespread use in unselected alcoholic clients is presumably contraindicated.

A matter of considerable importance is that the definition of depression employed in this study was based, not upon a clinical impression, but upon a psychometric test. This tactic will permit the ready replication of the study and, if the results achieved in replications are consistent, the ready utilization of this knowledge in treatment. Not that the treatment of depressed alcoholics is likely to prove a simple matter; for one thing, depression in such clients may be either a predisposing cause of drinking, or may be caused *by* drinking (e.g. 46), and the efficacy of therapeutic measures (or even the need for them) may vary according to whether depression is a cause or an effect. For another thing, depression is not a unitary phenomenon, and it has been demonstrated that there are significant

*Data for nondepressed alcoholics on this criterion are not provided in the study as published. However, the means for the nondepressed patients can readily be calculated. Unfortunately, insufficient data are provided to test the difference between the two means (lithium and placebo) for significance; by estimate, it approaches signifance.

interactions between types of depressions and types of antidepressant medications (e.g. 19, 28). But there is little doubt that this study, with its objective approach to matching and the significant results that it obtained, points the way toward much promising future treatment research.

Finally, a set of studies which provide a fascinating illustration of matching will be explored. The theoretical notions underlying the matching of clients and treatments which they embody are complex, and require explication. They were based upon a dimension referred to as Conceptual Level, which in turn was derived from a developmental theory of personality first proposed by Kurt Lewin and subsequently elaborated by many others. As explained by MacLachlan, who conducted the Conceptual Level studies on alcoholics,

> Conceptual level may be described as a blend of the cognitive and motivational aspects of personality orientation ranging from low to high. Persons lowest in CL are seen as being poorly socialized, egocentric, impulsive and cognitively simple. At the next stage, they are dependent on authority, compliant and concerned with rules. At the third level, they are independent, questioning and self-assertive. Finally, persons highest in CL are interdependent, empathic, and cognitively complex (24).

A number of attributes which are more familiar than Conceptual Level are correlated with it, including moral maturity, ego strength, articulation of body concept, social competence and others. It is also inversely related to dogmatism and authoritarianism (5, pp. 38-42, 23, 24). However, these correlations are low and do not account for the concept. Determination of the Concept Level of an individual is complicated, and involves the rating of a paragraph completion test by experienced judges (in this series of studies two trained judges were utilized and achieved an interjudge reliability coefficient of .93).* How Conceptual Level may be matched to treatment environments is explained as follows:

*A less complex method of measuring Conceptual Level is under active development (47).

> The degree of structure in the environment is the key dimension against which the Conceptual Level (CL) of a person can be coordinated or matched -- those low in CL are likely to benefit most from high structure which compensates for lack of resources to structure experience. Such people with low CL are described as matched to their environment as they require guidelines from others in order to function adequately. However, people with high CL are mismatched to a highly structured environment since they function at their best when generating their own guidelines or are engaged in the process of self-delineation. An environment of low structure which encourages high CL people to use their own resources creates ambiguity or confusion for those with low CL (24).

Since these are relatively complex interactions, they are summarized for convenience in Table 9. Following upon the foregoing, the table indicates that Conceptual Level matching has to do with the *structure* of individuals and of treatments. The postulated match is of unstructured individuals with structured treatments, and *vice versa*; in this sense, it is an inverse match. Application of this paradigm to treatment was based on prior observations suggesting that therapists with lower CLs provided highly structured therapy, while therapists with higher CLs provided nondirective or at least less structured therapy. Aftercare following therapy could also be characterized in this manner; clients who were residents of the city in which the study was mounted took part in a highly structured aftercare programme, while clients who resided in other areas were kept in contact but were provided with no programme. Thus aftercare for out-of-town clients could be viewed as relatively unstructured. Consequently, in this study one could examine the outcomes of clients matched to therapy, to aftercare, or to both.

Recovery rates for 94 clients with alcohol problems, according to the degree of match, are presented in Table 10. Results were significant beyond what might have been expected by chance; that is, clients who were matched either to therapy or to aftercare did significantly better than clients who were not. Of particular interest is the fact that clients who were matched to therapy alone or to aftercare alone did about equally well in comparison with mismatched clients; but clients who were matched to *both* therapy and aftercare had a slightly higher overall recovery rate than those matched only to one condition, and the gap between these clients

and those who were *mismatched* to both conditions of treatment was a great deal wider.

Thus, in general, the closer the match, the better the results. McLachlan's work is of considerable importance. It has been described as "the only methodologically acceptable study to consider psychological variables in interaction with treatment variables" (37, p. 205). An overall inference favourable to the matching hypothesis can with justice be drawn collectively from the four experimental studies reviewed above. They do not definitively prove that matching is effective in the treatment of alcohol problems. The matching hypothesis remains an hypothesis, that is, "a provisional supposition which accounts for known facts, and serves as a starting point for further investigation by which it may be proved or disproved" (41, p. 946). But the studies cited would appear to demonstrate much potential merit in the undertaking of further investigation of the matching hypothesis by treatment researchers in the field of alcohol problems. In the final section, a systematic way of approaching treatment research which it is hoped will facilitate its conduct will be described.

A System to Facilitate Treatment Research

As the foregoing indicates, the current state of treatment research in relation to alcohol problems is less than satisfactory, having been based almost exclusively on an erroneous assumption of client homogeneity. Few critical studies have been done; most have methodological difficulties. Even when promising beginnings have been made, such as the Wallerstein study, their planned development has failed to materialize, and the available results have had no noticeable impact upon clinical practice or upon research. We do not at present know how to treat alcohol-related problems efficiently and effectively. This continues to be true despite the fact that what was needed for effective treatment research was well understood almost forty years ago (see above, and 34) and has been emphasized periodically ever since then (e.g. 37). One must ask: Why?

Undoubtedly the reasons are many and complex. They might well occupy the labours of historians and sociologists of science for some time to come. One among these reasons may be rather simple, however. It is that treatment research is very difficult to carry out.

Often, treatment research is an afterthought; these days, it is frequently an afterthought which has to do with protection of external sources of funding. It is much less frequently pursued in its own right, either out of intellectual curiosity or because it is clearly recognized that a solid factual basis for treatment does not exist. Treatment is often assumed to be a good in itself: "The certainty of value (of treatment) is not rooted in empirically verified results; it is rather the assurance derived from an unanalysable moral imperative" (49, p. 150). As a result, research is rarely seen as an integral part of treatment.

Consequently, when it is done, it usually must be imposed upon existing treatment services from without. And when this happens, a seemingly interminable series of "we-they" conflicts between clinicians and researchers ensue, which end in research becoming at least unpleasant and at most impossible. The deliberate sabotage of research under such circumstances is not an infrequent occurrence. More often, less overt but equally cruel tactics are employed passively over a prolonged period of time until the situation eventually becomes intolerable. Nor are the problems all on the side of the treaters. Researchers often ignore the artificialities which experimentation may introduce into the clinical context, and place experienced therapists in moral and ethical quandaries. They may have an exaggerated idea both of the ignorance of nonresearchers and of their own astuteness. They forget the dictum that "the most dangerous form of stupidity is a sharp intellect." In a word, it is often war. Small wonder that so little is done, and that the few studies wrested from such a quagmire are never repeated, but suffer their data to be tortured endlessly to reveal more than it legitimately can. Under these circumstances, Dr. Johnson's well-known commentary about the dog walking on his hind legs is applicable to treatment research: "It is not done well; but you are surprised to find it done at all."

An alternative is to build a system, or to restructure an existing non-system, in such a way that there is a close interaction between treatment and research. This alternative is based upon the assumption that treatment and research ought inextricably to be associated with each other, have much to offer each other, and can coexist harmoniously if care is taken in designing the context of coexistence. The Clinical Institute of the Addiction Research Foundation in Toronto, Canada, which deals with approximately 2400 new cases of alcohol and drug dependence per year, has been engaged in designing, testing, and implementing such a system for some time. Its purpose is to facilitate both careful research and effective and efficient treatment. Whether it will do so has not yet been finally demonstrated. But the system will be briefly presented as a potential contribution to the resolution of the major problem of quality treatment research: its scarcity.

Several descriptions of the system are extant (12, 36, 50-57). Since it had its origins in studies of treatment services, most of these descriptions are from a service viewpoint. In order to discuss the system from a research viewpoint, reference will be made to material contained in the closing portions of the initial section of this paper, spelling out the requirements for research on the matching hypothesis. It will be seen that the Clinical Institute treatment research system is responsive to these requirements.

Since treatment research is by definition largely performed upon clients seeking treatment, and since they are a diverse group, many will be called for research but few will be chosen. However, those *not* chosen for research purposes must nevertheless by provided with appropriate care. Two features of the Clinical Institute system facilitate this. First, all studies are carried out in parallel with active treatment programmes providing many potential interventions to which the client may be directed as alternatives to research interventions. Second, all clients enter the system through a single point, which quite readily allows their initial contact to be with a Primary Care Worker. This individual has overall responsibility for the management of the client's care. He or she will provide a basic level of supportive care to the client as needed, and will assure continuity of care with whatever specialty interventions may be indicated. Should a client enter a research

project, the Primary Care Worker will recede into the background; but if the client should drop out of the research project, or if the research project should terminate, the Primary Care Worker will re-emerge, to look after the client's needs. Such an arrangement obviates the necessity for the researchers themselves to assume clinical responsibility for the client's overall care *ad infinitum* (though the research design may dictate this for a period of time). In addition it satisfies the contemporary ethical requirement that, notwithstanding the need for research, each client must be provided with at least a basic level of care (58, 59).

Concern that such primary care may be a confounding variable in experimental studies, and that a no-treatment group might be preferable, is understandable if short-sighted. Ethical considerations aside, no-treatment controls have many practical problems. Especially in countries where some form of universal health insurance obtains, such as Canada and the United Kingdom, clients seeking treatment who are given none are quite likely to go elsewhere. Since there is then no control over what interventions they may receive, clients being seen by Primary Care Workers may paradoxically represent less of a confound than those placed in an alleged no-treatment group. In addition, they and the record of their care remain with the ambit of the treatment system, making it easier to specify what happens to them over time than if they leave the system. Finally, since the Primary Care Workers and the researchers belong to the same system, precise specification of the activities of the Primary Care Workers can be agreed upon in advance and confirmed by supervision. And, of course, when the time comes to follow the clients up, those who remain in contact with their Primary Care Workers will be much easier to find. Thus, on balance, it appears that the primary care component of the system greatly facilitates research.

In most experiments, large numbers of subjects are required to fill the various cells of the analytic design. Likewise, at least minimal screening criteria are usually employed; and, in matching hypothesis experiments, the criteria for entering the study may be quite extensive. It is also essential that assessment and matching be carried out prior to the point at which the client enters treatment since, in most circumstances, which treatment he enters will be contingent upon the assessment

and the randomization procedure. Thus it is advisable, in facilitating treatment research, to have the capability of screening large numbers of clients prior to treatment, so that all those eligible for research may be diverted to it and the desired large numbers thereby generated. It should be possible to screen these clients on a large number of variables, both standard and experimental in nature. All of this work should be performed by personnel not involved in treatment, in the event that it is desirable to preserve blindness for critical characteristics and assignments.

Such requirements are met by the Clinical Institute system. A well-staffed Assessment Unit is housed in space particularly designed to facilitate both group and individual testing, and is supervised and managed by highly trained personnel. Clients are routinely referred to this unit following their initial primary care contact or contacts, rather than being referred to treatment programmes. Indeed, access to treatment programmes, as well as to research experiments, is contingent upon assessment. Clients refusing assessment (approximately 15% of the treatment-seeking population) are provided only with primary care, on the ground that specialized or definitive treatment without appropriate assessment is indefensible. In this sense the system is a limited-access system with respect to secondary care; there is no access to definitive treatment (other than that of an emergency medical or psychiatric nature) except through the Assessment Unit.

Because the unit and its personnel are exclusively devoted to the gathering of data, a large amount of highly consistent data can be gathered in a short period of time. This facilitates research in at least two ways: by increasing the number of items of information that can be gathered on each client prior to treatment; and by removing the burden of such data-gathering from clinical personnel, thus giving them more time to treat clients. In addition, since virtually all data is gathered at a single point, both in space and time, its collation and processing are facilitated. Computerized print-outs of the assessment data on all clients have been routinely available for some time, and rapid progress in the direction of on-line testing of clients and automated scoring of test results is being made. Such improvements will not only further increase the amount of data gathered and the rapidity of its

processing, but will enable assessment to be more carefully tailored to the needs of individual research projects.

Because all data for each client are gathered prior to treatment assignment, and because assignment and treatment are separate processes in terms of time, space, and personnel, any sort of random assignment to experimental conditions, fully based on all data and blind to clients and therapists, is possible. Moreover, the separation between assessment and treatment facilitates replications of studies involving the restructuring of referral criteria. All that is necessary is to change the decision rule for the assignment of clients. This would be difficult if not impossible if the assessment process were imbedded in the clinical setting itself.

Finally, there is the issue of providing adequate follow-up. In many treatment research studies, an entire follow-up team must be assembled from scratch, trained, and used to perform a single study of a single programme. This is a manifest hardship, though it has proven a boon to follow-up study contractors. They, however, often have fully subscribed schedules, are quite expensive, provide principally supervisory personnel, and are unfamiliar with local circumstances and with the particular demands of specific research designs. Follow-up, in a word, is often a considerable chore. In the Clinical Institute system such problems are minimized by having a permanent, full-time Follow-up Unit which can provide these services to all research projects requiring them. On account of its close administrative relationship to the Assessment Unit, the Follow-Up Unit can readily make use of data gathered prior to treatment in specifying the progress of clients. Indeed, if an inordinate amount of post-treatment data is needed, readmission to the Assessment Unit in order to facilitate its being gathered is quite feasible.

To summarize, the Clinical Institute treatment research system provides reliable and consistent basic services of primary care, assessment and follow-up to all investigators. These services are imbedded in a system design, and in an administrative structure, which allows them to be maximally flexible. They are also fully integrated with the regular clinical services of the Institute (which in themselves are often the objects of research). Any investigator whose protocol

passes rigorous scientific, ethical, and administrative review may utilize these services. Experienced research administrators are available to provide advice on how this might best be done.

It is believed that this system provides investigators with essential tools for the conduct of treatment research. Of course, the investigator must provide the ideas, in terms of the theoretical and empirical justifications for the study; the study design; and the leadership for the project. If the intervention to be studied is not currently in existence, it may have to be created. But it can be "plugged into" a system which will provide all the other essential requirements, in addition to a score of standard interventions. The system is designed to facilitate pre-test post-test experimental designs (it places all interventions automatically within this context) and, in particular, it facilitates treatment research experiments involving the matching hypothesis.

To date, emphasis has necessarily been upon the construction of this system. Its use in experimental treatment research is largely a matter for the future. But there is reason to think that it will avoid many of the difficulties to the past by bringing treatment and research together within the same operational context and permitting them to work synergistically. Hopefully this will allow the concerted, incessant, long-term effort required to assure that effective and efficient treatment will emerge in the long run with the least possible damage to the spirits and wills of investigators, therapists and clients. For all that has been said, written, and done about the treatment of alcohol problems, we still appear to be at the beginning of the beginning. One thinks in closing of the portrayal of the "connoisseur of chaos" by the poet Wallace Stevens:

> The squirming facts exceed the squamous mind,
> If one may say so. And yet relation appears,
> A small relation expanding like the shade
> Of a cloud on sand, a shape on the side of a hill (60).

TABLE 1

Some outcome data from the Wallerstein study (40).

Psychiatric Diagnosis	Per Cent Improved: Antabuse	Conditioned Reflex	Group Hypnosis	Milieu
Compulsive Character (N=11)	100	20	0	50
Depressive Reaction (N=3)	0	100	--	100
Passive-Dependent Character (N=21)	100	29	63	50
All Patients (N=128)	53	24	36	26

TABLE 2

Restructured outcome data on conditioned reflex therapy by level of aggression; from the Wallerstein study (40).

Level of Aggression	Improved	Unimproved
Less aggressive	8	1
More aggressive	4	16
	12	17

TABLE 3

Outcome data on milieu therapy by psychiatric diagnosis, from the Wallerstein study (40).

Diagnosis	Improved	Unimproved
"Schizophrenic-Schizoid"	2	5
Passive-Dependent	2	0
Passive-Aggressive	3	4
"Neurotic"	3	3
	11	15

TABLE 4

Outcome data on milieu therapy by attachment factor, from the Wallerstein study (40).

Attachment Factor	Improved	Unimproved
Positive	10	5
Negative	1	10
	11	15

TABLE 5

Some outcome data on 92-94 clients from the study of Edwards, Orford *et al.* (3).

	Advice *(N=44-46)*	Treatment *(N=48)*
Drinking Behaviour During Last Year:		
Longest period of abstinence (weeks)	15.3	15.8
Total weeks absintinent	19.0	20.4
Weeks with high consumption	15.5	13.9
Self-Ratings of Problem:		
No problem	57%	65%
Moderate or serious problem	37%	33%
Improvement during past year	59%	63%
Social Adjustment:		
Time off work (days)	63.4	84.0
Improvement in living together	39%	42%
Trouble score	3.2	3.1

TABLE 6

Outcome data by Jellinek classification of clients, from the study of Orford *et al.* (27).

	Advice	Treatment
Non-dependent alcoholics	11*	6*
Dependent (Gamma) alcoholics	0**	9**

*p < .01; **p < .01.

TABLE 7

Outcome data by goal achieved, from the study of Orford *et al.* (27).

	Number of Abstainers	Number of Controlled Drinkers
Non-dependent alcoholics	5	10
Dependent (Gamma) alcoholics	6*	0*

*$p < 0.025$.

TABLE 8

Outcome data (mean number of days spent drinking) by type of treatment and level of depression, from the study of Merry *et al.* and Reynolds *et al.* (29, 30).

	All Patients (N = 38)	Nondepressed patients (N = 22)	Depressed patients (N = 16)
Placebo	20.7	0.77	48.1*
Lithium	9.5	15.5	1.3*

*$p < 0.01$

TABLE 9

Basis of matching in McLachlan's Conceptual Level studies (23, 24).

Structural Properties of Treatment	Client's Personality Orientation: Unorganized	Organized
Highly structured	Matched	Mismatched
Not highly structured	Mismatched	Matched

TABLE 10

Outcome by degree of match for 94 clients, from the studies of McLachlan (23, 24).

Matching Paradigm	Recovery rate (%) of Clients Matched	Recovery rate (%) of Clients Mismatched
To structure of therapy	70	50
To structure of aftercare	71	49
To both	77	38

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Chapter Two

SELECTING PATIENTS FOR TREATMENT

An Heuristic Model

by Frederick B. Glaser

I gave her one, they gave him two,
You gave us three or more;
They all returned from him to you,
Though they were mine before

Lewis Carroll (1)

The abstract yet precise nature of mathematics seems at first blush to be inimical to the more subjective and humanistic concerns of those engaged in the therapeutic enterprise. But it need not necessarily be so. In considering a complex reality, the subjective and the objective perspectives may complement each other, and provide a more accurate picture than either is capable of achieving alone (2). Thus Lewis Carroll utilized the mathematical example cited as an epigraph, among others, to illustrate the grammatical problem of the indefinite reference of pronouns. In this brief paper an attempt will be made to develop a simple heuristic model of a mathematical type which may cast some light upon a phenomenon which clinicians have appreciated intuitively for years: the desirability of selecting different patients for different forms of treatment. Although the focus of the discussion will be upon treatment for alcoholism, it applies as well to treatment for other kinds of problems (e.g. 3-5).

In the field of alcoholism treatment the notion of specificity is not of recent origin. Rather, it is an idea which has been current for some time and has received

widespread approbation in theory from many workers. Representative statements from two reviews are as follows:

> The existence of a diversity of therapeutic techniques implies that no single therapy for alcoholics is reasonably certain to work. On the other hand, all known approaches -- from prayer meetings to aversive conditioning --apparently produce desirable changes in some patients. Under these conditions, finding the optimal form of care for particular types of patients appears to be paramount (6).

> Rather than blindly apply treatments wholesale to hospital and out-patient populations (which is more administratively convenient) it is time that the issue of the patient-treatment fit be investigated using some of these variables. Clinicians intuitively recognize the importance of this issue...Perhaps (their recognition) is based on little more than the operation of erroneous treatment sterotypes. On the other hand, it may indicate the clinician's intuitive recognition that different kinds of patients find certain kinds of treatments more acceptable and do better in them than others. Definitive answer to such questions can come only from further rigorously designed treatment research (7).

This is perhaps the alcoholism treatment analogue of the Mikado's "object all sublime/to make the punishment fit the crime." But in this instance what is being sought is not sardonic retribution for, let us say, the pool-hall hustler, who is condemned to play forever "on a cloth untrue/with a twisted cue/and elliptical billiard balls." It is rather a way of providing help for patients which is more effective and efficient (8). A medical analogy may be helpful here. One can readily understand that if all cases of an infectious disease (e.g. pneumonia) were treated in precisely the same manner the outcome would be unfortunate in some. If penicillin were used in every instance, those persons infected by organisms resistant to penicillin would pursue a downhill course. Fortunately, by culturing the infecting organisms and testing them for their sensitivities to all available antibiotics, a more exact regimen can be instituted, with a higher probability that more people will recover.

There is suggestive evidence that current practice in the field of alcoholism treatment resembles an attempt to treat all infectious diseases with a single kind of treatment. For example, in a study of 600 patients, no cross-referral was seen: "In not one instance was a treatment facility found that referred the alcoholic to

another treatment facility as a more appropriate match" (9). Other observers have reported similar findings (10, 11). Such results are inconsistent with a discriminant approach to treatment. They suggest instead a desire to find (or, worse, a belief that one has found) the one single treatment which will cure all cases. Notions of this sort have surfaced in other fields, perhaps in all fields, but have rarely if ever been empirically substantiated. In the field of alcoholism treatment a specific warning against such thinking was issued following an exhaustive survey of psychologically-oriented interventions:

> "Rather than seeking an outstanding treatment, therapists might give attention to matching each alcoholic with the setting and approach which meshes best with his views on the causes, nature and treatment of alcoholism. Such endeavours should advance the field of alcoholism treatment more than further proliferation of techniques used to help alcoholics once they are involved in therapy" (12).

A relatively simple heuristic model may provide a means of focusing this line of reasoning. Its fundamental assumption is that only when specific patient variables are combined with specific kinds of treatment will a satisfactory result ensue. In terms of our medical analogy, it is only when a pneumonic process caused by penicillin-sensitive organisms is treated with penicillin that the results will be satisfactory. The converse of this assumption is that in the *absence* of this specific patient factor the same treatment methods, which would otherwise be highly satisfactory, will be ineffective. By analogy, if a penicillin-*resistant* pneumonic process is treated with penicillin, the results will be unsatisfactory *even though* penicillin is an effective treatment under other circumstances.

Let X represent some specific factor present among patients with problems related to alcohol which, when combined with a specific treatment, T, produces a satisfactory result, R. Therefore, X + T = R. In addition, let Y and Z represent other specific patient factors, and let U and V represent the specific forms of treatment which when combined with specific factors Y and Z will also produce a satisfactory result R. That is, Y + U = R, and Z + V = R. But the model also assumes the converse: if another form of treatment is used in a particular instance, the result will not be a good result. In our medical analogy, this would be the

instance in which penicillin is used to treat a penicillin-resistant organism. In the mathematical model this can be simply represented by saying that while X + T = R, X + U = 0*. The same would hold true for other non-specific combinations of patient variables and treatments.

Let us make two further assumptions regarding the specific patient variables, X, Y and Z. First, let us assume that they are randomly distributed among the population of persons with problems related to alcohol, and in equal proportions. Second, let us assume that, since under most circumstances no attempt is made to assess patients for the presence or absence of the specific variables, X, Y and Z prior to treatment, the variables will also be randomly and equitably distributed in the populations of patients entering each of the three different kinds of treatment, T, U and V. Thus a given treatment population of patients, P_1 = 30X + 30Y + 30Z. Likewise, other treatment programme populations (P_2, P_3) would have the same factorial composition. Given these assumptions, we can examine the likely outcomes of the three treatments, T, U and V, as a result of interaction with these populations:

*Zero; that is, a good result is <u>not</u> obtained.

TABLE 1

Random match of specific patient factors with specific treatments

Population	Factor Composition	Treatment	Interactions	Outcomes
P_1	30X+30Y+30Z	T	30X + T = 30R 30Y + T = 0 30Z + T = 0	30R
P_2	30X+30Y+30Z	U	30X + U = 0 30Y + U = 30R 30Z + U = 0	30R
P_3	30X+30Y+30Z	V	30X + V = 0 30Y + V = 0 30Z + V = 30R	30R
	270 pts.			90 good results

Efficiency of treatment = $\frac{\text{90 good results}}{\text{270 patients treated}}$ = 33.3%

The table points out that, when patients are unselected for specific factors which interact favourably with specific treatment interventions, some patients will achieve a satisfactory result but most will not. Those patients who by sheer chance happen to possess the specific factor which interacts with the specific treatment which they have (also by chance) happened to undertake will achieve a satisfactory result. But since multiple factors are operating, most patients will not possess the requisite factors and hence will not achieve a satisfactory result. Thus most of the work which goes on in each of the treatment programmes is in vain. Another way of saying this is that the overall efficiency of the treatment system will not be very great. In the hypothetical example shown the efficiency of treatment is only 33.3%. Moreover, the satisfactory results which do occur are chance occurrences.

When the actual outcomes of various kinds of treatment are examined, it appears that this hypothetical model may strike uncomfortably close to the truth. It is not unreasonable to assume that many patients will recognize they have entered a treatment programme unlikely to afford them a satisfactory result and will leave.

While this is certainly not the only operative factor in attrition from treatment programmes, it is probably quite significant. One careful study of attrition from treatment over a five-year period found that a composite total of 86% of all patients did leave; that 50% left within the first month; and that the time course of attrition followed an almost perfect log-negative curve (13). These parameters are quite close to what one might infer would happen from the mathematical model proposed. Similarly high rates of attrition have been observed in other substance-abuse treatment programmes (14).

The model's prediction that, under circumstances in which patients are not carefully selected for treatment, the results of different treatment programmes will be the same, has been substantiated by careful studies both of psychotherapy generally (15) and of alcoholism treatment (12). In both instances a more discriminant matching of patients to treatment paradigms was called for. This deadly uniformity of results often leads practising clinicians into cynicism or despair, and may contribute significantly to problems of clinician burn-out.

Finally, the fact that in each hypothetical patient population a third of the patients achieved a satisfactory result, while in some measure an artifact of the arbitrary trichotomization of predictor variables, brings to mind an ancient clinical aphorism referred to as The Rule of One Third. According to this rule, no matter what is done to a group of patients, one third will show significant improvement; another third will show little improvement; and another third will show no improvement, or actually deteriorate. Not a great deal has been written explicitly about the Rule of One Third, and it seems more to be a part of the oral tradition of the culture of therapy. But as the treatment results in Table 2 suggests, the Rule is not without some empirical validation.

TABLE 2

The Rule of One Third: Data from Child Psychotherapy
N = 5140

Article	No. Studies Reviewed	Much Improvement	Partial Improvement	No Improvement
Levitt, 1957 (16)	18	1174	1105	1120
Levitt, 1963 (17)	22	456	679	606
	40	1630	1784	1726
	Percentages:	31.7%	34.7%	33.6%

While there are a number of difficulties with this data, and while extrapolation beyond child psychotherapy may be without warrant, the data do confirm the descriptive validity of the Rule of One Third for this large series of cases. Similar results have been obtained in studies of alcoholism treatment (e.g. 18). The interpretation of such results has been various. Some authors suggest they may be explained by assuming that the operative elements of all treatment interventions are generic rather then specific, and thus it is not surprising that outcomes are similar (12, 15, 16, 17). Others, including the author of the studies from which the data in Table 2 are taken, suggest that treatment therefore is producing no effect (17, 19-21). The heuristic model proposed herein suggests that the Rule of One Third may be a function of failure to select patients for specific kinds of intervention. Whatever the explanation may be, to the extent that such outcomes are generalizable, they are unfortunate. In particular, a treatment system which produces a high proportion of other than good results is unlikely to be viewed favourably when scarce funds are being allocated.

Utilization of the same model illustrates the considerable improvements which might accrue if one learned systematically to select patients who possessed specific characteristics and to match such patients correctly with specific treatment programmes. Such a selection process would permit the allocation of all patients with a specific factor to that treatment programme most likely to help them. In terms of the model, all patients, for example, with factor X could be assigned to

programme T and would achieve a good result R. Thus instead of P_1 = 30X + 30Y + 30Z, selection would permit P_4 = 90X. If selection were systematically applied, the following results would obtain:

TABLE 3

Non-Random match of Specific Patient Factors with Specific Treatments

Population	Factor Composition	Treatment	Interactions	Outcomes
P_4	90X	T	90X + T = 90R	90R
P_5	90Y	U	90Y + U = 90R	90R
P_6	90Z	V	90Z + V = 90R	90R
	270 pts.			270 good results

$$\text{Efficiency of treatment} = \frac{\text{270 good results}}{\text{270 patient treated}} = 100\%$$

Thus it is possible that if a precise selection of patients for specific treatment programmes were made the efficiency of the overall treatment system might be greatly enhanced. In the model, the treatment system was able to triple its efficiency. While there exists no plethora of evidence that this can actually be done, there are at least some suggestive results. In one treatment system it has proven possible to identify specific patient variables which can predict attrition from specific treatment programmes at a statistically significant level (22). In another treatment system, formally identical but designed to provide medical care, a similar careful assessment and assignment process resulted in a satisfactory level of care and very considerable savings in terms of time and money (23). The positive results which regularly derive from the screening of infective organisms for sensitivity and the resultant use of an appropriate antibiotic have already been alluded to and require no further substantiation. But even in the less precise area of the use of psychoactive medications in the treatment of mental disorders, the critical importance of the appropriate drug for each type of client has been conclusively demonstrated (24).

It is recognized that in the practical application of this model to the field of alcoholism treatment there are major difficulties. For example, it is not known what the specific patient factors might be, nor even how best to characterize given methods of intervention. The expectation that any given treatment system will achieve a 100% level of efficiency is certainly illusory. Yet an improvement over the current state of affairs seems both desirable and possible. A continuing application of research to the treatment process should permit inroads to be made on these and other problems. What is required is a treatment system model which (1) provides for the meticulous assessment of every patient in terms of multiple variables, (2) assigns patients to treatment only after such variables are assessed and as the result of that assessment, (3) characterizes the treatment of intervention programmes or methods to which patients are referred on an objective basis, (4) measures the outcome of these treatments or interventions, and (5) utilizes the outcome studies to restructure the assignment process in an ongoing manner, so that patients are systematically directed to programmes in which it is known that persons with similar characteristics have achieved satisfactory outcomes. Such a treatment system should be capable of continually increasing its efficiency over time (25).

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Chapter Three

MATCHING IN THE REAL WORLD:

A Practical Approach*

by Frederick B. Glaser and Harvey A. Skinner

> *...many clinical settings are relatively unaffected by research findings. Part of this problem is undoubtedly related to the fact that many research studies are seen as being unrelated to the "real world" of clinical realities.*
>
> *--Sol L. Garfield (1, p. 225)*

Matching seems to be an idea whose time has come. Whether it is irresistible, as such ideas are supposed to be, certainly remains to be seen. But it is at least the case that a great deal of current attention is being paid to it. A number of reasonably comprehensive reviews have appeared (2-6), as well as numerous articles (e.g. 7-11). Now a major conference is specifically devoted to the topic.

Yet the idea of matching clients to treatment is not new. In some respects it is a manifestation in the field of alcohol problems of principles of differential diagnosis and treatment laid down as long ago as the fifth century B.C. in the Hippocratic corpus. Even if one limits one's purview very rigidly, one can recognize

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*Note: An abridged version of this chapter appeared in Gottheil, E., McLellan, A.T., and Druly, K.A. (eds.): *Matching Patient Needs and Treatment Methods in Alcoholism and Drug Abuse*, Springfield, Charles C. Thomas, 1981, pp. 295-324.

that such a matching approach was strongly advocated for alcohol problems almost forty years ago, by well-respected pioneers in the field (12), and that promising experimental verification came from studies initiated almost thirty years ago (13, 14).

The prolonged gestation of matching in alcohol treatment may have been required to await a convincing demonstration of the heterogeneity of the subject matter under study. For matching as a concept depends upon the recognition that individual clients or subgroups of clients within the population are more different that they are alike. As this idea was rather more elegantly phrased in a recent review, "...the syndrome of alcoholism has one constant feature: *a significant life problem associated with the use of alcohol.* Beyond that we find multiple preexistent and consequent variables associated with a given person's alcohol problem" (6, p. 135).

Perhaps the nidus around which the matching hypothesis crystallized finally, therefore, was the 1962 study by Dr. D.L Davies of London on "Normal Drinking in Recovered Alcohol Addicts" (15). The furor generated by this epochal contribution has not yet abated, partly because the issues which it raised are only now undergoing the meticulous experimental evaluation they so patently deserve. But by forcing a re-examination of fundamental concepts Dr. Davies' work seems to have shaken the field into an agonizing reappraisal. A new formal definition of the subject (in eleven propositions and thirty-two corollaries) which incorporates the notion of matching as a logical consequence of its analysis is merely one manifestation of the basic ferment which now exists (16).

Whatever the historical cause -- and it is important to emphasize that, even if the above analysis is correct, the acceptance of matching is not necessarily contingent upon the acceptance of "controlled drinking" -- the matching hypothesis is much with us these days. This raises an important question: how do we handle it? A common response to any new and challenging idea is to relegate it entirely into the hands of academic researchers until such time as it can be duly baptized by them and thereby enabled to emerge into the real world. There are signs that this

course may be followed by matching, as by many other ideas. It is an honourable course. Meticulous experimental research of the kind in which academic centres specialize is critically necessary. However, the principal thrust of this contribution is to urge that the elucidation of matching not be limited to that very special arena, but that it be regularly tested in the crucible of the clinical setting.

The principle reason for wishing that this might be the case is recognition of the complimentary assets and liabilities of the academic research institute and the clinical treatment programme. Those studies which have suceeded in demonstrating the cogency of matching are experimental studies which have utilized random assignment to differing conditions of treatment (5). Such studies are fundamental to the demonstration that the notion of matching is sound, and in general are feasible only in an academic setting. But the universality of their application is open to question. They illustrate more that matching is a possibility than that the type of match studied in the research will be applicable in the clinical setting. It may or may not be. The clinical setting operates under vastly different contingencies and constraints, and by comparison the research setting is both artificial and privileged:

> ...research tends to be conducted largely in academic institutions, laboratories, or chronic patient wards in large public hospitals, yet most of the psychological treatments are offered in multiservice clinics, military clinics, community mental health centers, general medical care settings, general hospitals, and private practice. The effect of this disparity is that different kinds of patients and perhaps even different qualities of treatment may be characteristic of the research settings. To make our research findings more useful to the practitioners and the policymakers, this discrepancy should be corrected (17).

But this very discrepancy has been cited in the past by clinicians to justify the absence of research from clinical settings. Such a stance is paradoxical since, if properly read, it *requires* the presence of research in clinical settings. If the two settings are fundamentally different (and they are), the transfer of knowledge from one to another is problematic, and it is best that research be done in both. Generically, research simply means the exercise of a sufficient degree of objective and analytic control over events to permit conclusions to be drawn which are

relevant to future actions. In the clinical setting, this means knowing very palpably what is going on so that better results can be obtained. Clinical activity without research is unthinkable, since it degenerates into an empty ritual which is carried on for its own sake and without reference to outcome. The research which is done, however, must be compatible with the constraints of the clinical setting.

Research activity in the academic setting is usually experimental research, while research in the clinical setting is usually descriptive research. In an academic setting a specific hypothesis is enunciated and examined through a rigid experimental design. In a clinical setting hypotheses ordinarily are not enunciated; often they are implicit. For example, one cannot imagine a clinician employing a given method of intervention without assuming that it is effective for the people to whom he applies it. This assumption is an hypothesis. A first step toward research in the clinical setting is to make such hypotheses explicit. They can then be tested empirically, by observing whether clients with particular characteristics do indeed respond more fully to a given method of intervention. If they do, and if these results are replicable on subsequent client samples, then the intervention can with some confidence be limited to clients having these characteristics.

This species of research lies within the capability of many or most treatment programmes, providing that certain relatively straightforward and simple steps are taken (to be discussed at greater length below). It must be viewed as having disadvantages when compared with experimental research. It takes a longer period of time and is less precise. But it also has enormous advantages. It is consonant with clinical operations, as random assignments tend not to be. It is not highly expensive, or ought not to be. Most importantly, it takes place in the real world, with real clients. It is applied directly to the population with which the treatment programme is dealing, and therefore its applicability for that programme is far more secure than any results achieved elsewhere. It is also conducted utilizing treatment programmes which actually exist in a given community, rather than those which are implemented for experimental purposes and may not be generally available or even feasible.

What must be avoided is the setting-up of a false dichotomy in which research is the exclusive property of the scientific establishment and clinical settings determinedly refuse to have any truck with it. To argue that research must take place in both settings is only to echo the ancient Greek maxim that the unexamined life is not worth living. Translated into the clinical setting, this might read: the unexamined treatment programme is not worth funding. Any programme can be examined in the course of its normal clinical operations. The findings will have important implications, both for the programme itself and in terms of generating hypotheses which can be tested more rigorously in an academic setting. The operative relationship between the two settings should be resonance, not antagonism. Complimentarity should be the order of the day (18). An extensive review of matching in psychotherapy has concluded that, despite difficulties, "the implementation of matching procedures based on empirical findings with matching variables appropriate to particular clinical settings remains an important objective" (19, p. 244).

General Factors

Having asserted that research of an empirical nature in the clinical setting is both necessary and desirable, it remains to be seen both how practical and how possible it may be. Since the subject under discussion is matching in particular, it will be important to examine factors which facilitate matching research in the clinical setting. There are both general factors and particular factors of this kind. The emphasis will be upon the latter, but some preliminary discussion of the former is in order.

A highly practical matter which bears directly upon the feasibility of matching research in the clinical setting is the design of the service delivery system. At present, in most jurisdictions, prospective clients seeking service are directly admitted to a particular treatment programme which provides a specific type of service. Most commonly this is a single service; for example, a study of all alcohol treatment programmes in a given state showed that even the possibility of receiving more than a single service did not exist for 85% of all clients (20, p. 69). Nor was

there much evidence of cross-referral, either for the 6,805 patients in treatment in this study (20, pp. 209-210) or for the 600 patients in another careful study elsewhere (6, p. 176).

This is not really surprising. Treatment personnel in a given programme are usually strongly committed to their particular method of intervention. While this has been stigmatized as a "monopolistic" or "Procrustean" orientation (21), such an outlook may be necessary to sustain the beleaguered clinician in dealing with supremely refractory clients. On a simple, but practical, level, a cross-referral usually involves a great deal of work, with a programme other than one's own likely to reap the rewards. Programmes which compete (often vigorously) on a local level for what they see as their fair share of a finite fiscal pie are quite likely to be less than cooperative with each other. Unfortunately, these circumstances militate against matching; "the degree to which differential treatment may be said to be available is proportional to the number of distinct treatment options offered" (22, p. 13). If, under many circumstances in the real world of treatment, only a Hobson's choice is offered -- that, or none -- it will be difficult to examine matching.

For this reason, as well as for many others, limitation of direct access to treatment programmes may be desirable. As an alternative, clients can first be admitted to a non-treating, "neutral" facility which can suitably evaluate them and subsequently direct them to an appropriate treatment programme. A very persuasive study (23) has shown that such a facility is likely to be much more flexible in making dispositions than are individual treatment programmes; flexible referral is an attribute which facilitates studies of matching. A service delivery design of this kind has been widely recommended in the field of substance abuse (e.g. 20, 22, 24-26). It has the added advantage of organizing separate (and often isolated) treatment programmes into systems of treatment; and "effective treatment facilities are *systems of treatment* that have coherent organization and aggressive intake and follow-up procedures that provide a wide spectrum of carefully constructed treatment options" (6, p. 140; emphasis in original).

Another important general factor bearing upon the ease with which matching of clients and treatment programmes may be explored is the type of funding employed. Matching is based upon the notion that particular clients do well in a particular programme, a fact of which astute clinicians have always been aware. Consequently, successful matching will involve a degree of selectivity, with fewer clients being admitted to a particular programme. In a test of matching clients to treatment involving 203 individuals (24), it was found, for example, that if minimal criteria for admission to individual therapy were used, half of all clients who expressed an interest in this intervention were ineligible (28). It may be assumed that, if more elaborate criteria were to be used (after having been substantiated by research), the number of eligibles would drop even further.

In some respects such a reduction in numbers is desirable. Interventions such as individual therapy are both costly and time-consuming, and limiting them carefully to persons likely to benefit from them (assuming such individuals can be identified) makes sense. However, limiting its services would be disasterous for a programme which depended upon fee-for-service funding. Such a funding pattern provides an economic incentive for getting as many people into treatment as possible: the more people who are in treatment, the more money the programme receives. In the current state of affairs, then, powerful economic incentives are at work which operate *against* any desire to match clients to appropriate treatment programmes.

Of course, the drug and alcohol field is not alone in facing this dilemma. It has been a major problem for medicine generally. George Bernard Shaw once put it in his characteristically wry manner: "That any sane nation, having observed that you could provide for the supply of bread by giving bakers a pecuniary interest in baking for you, should go on to give a surgeon a pecuniary interest in cutting off your leg, is enough to make one despair of political humanity" (29, p. 74). In Shaw's country, this situation was eventually reversed by adopting a medical insurance scheme which provides economic incentives in the opposite direction, that is, favourable to matching. Rather than reimbursement increasing as service increases, reimbursement (in general terms) remains fixed, so that the provision of excess

service *diminishes* profits to the provider. Canada has had a similar scheme for some time (30). The United States has not, and is not likely to, at least in the foreseeable future. Only 8% of Americans are serviced by pre-paid health insurance schemes (31). But it is no accident that an American programme which has been among the most zealous (in the medical sphere) in applying matching principles to its clientele is both based on prepayment and does not admit clients directly to treatment except in life-threatening emergencies (32).

To conclude this section, it may be noted that clinical research on matching would be greatly facilitated by the re-design of the service delivery system and by the development of alternatives to fee-for-service funding patterns. Although these conditions may obtain in some areas, they are not generally prevalent in the United States. While those who are interested in matching may wish to foster such developments, they will likely be a long time in coming. Therefore the balance of this communication will be devoted to ways in which matching may be accomplished in the clinical setting in the absence of more general changes.

Particular Factors

In order to approach matching at the programme level, it may prove useful to work from a more specific definition of matching. Matching, for practical purposes, may be defined as the deliberate and consistent attempt to select a specific candidate for a specific method of intervention in order to achieve specific goals. From this definition flow the requirements for matching, which include: the specification of candidates; the specification of methods of intervention; the specification of goals; and a rational method of alignment of specific candidates with specific methods of interaction in order to achieve specific goals. Implicit in these requirements for matching research is another: the ability to determine the outcome of treatment. The first three requirements will be briefly summarized.

Specification of Candidates

In order to make a match, one must know a great deal about the individual involved, as well as his particular ecology, and preferably in objective, quantitative

terms. This requires a careful assessment prior to intervention. Not only will such an assessment provide ideas about the most appropriate match, but it will provide a baseline against which future change can be measured. Much has been written about the assessment of clients in this field (e.g. 33, 34). What needs to be stressed here is that the process need not be elaborate, and that simple demographic data, providing it is carefully and consistently gathered, can form a splendid basis for studies of matching. Any treatment programme is capable of gathering such data, though in practice surprisingly few do so (e.g. 24, pp. 119-26; 35).

Specification of Interventions

While the specification of methods of intervention is not well developed (4, p. 12), attention devoted to it will pay handsome dividends. For example, one large-scale study which referred 83.4% of clients to individual therapy failed to find any matching effects (9). One of the many reasons may have been that "individual therapy" was considered a single entity. However, there may be as many as 140 different psychotherapeutic approaches, and at a less sensitive level they can at least be subdivided into three distinct types (36). A similar analysis may be applied to group therapy. It is hardly unreasonable to suppose that a given individual may do well in one kind of individual or group therapy and not in another. But such outcomes will be lost if all kinds of therapy are lumped together. Some kind of categorization of its therapy or therapies should be well within the ability of most programmes.

Another point to keep in mind is that combinations of interventions are less likely to reveal matching effects that are single interventions. While it is a not uncommon practice to provide a given client with a pastiche of interventions, in the hope that "something will take," there is little justification for such an approach. On the practical side, if clients are routinely provided multiple interventions, those interventions will rapidly become fully subscribed and hence may not be available for other individuals who actually need them. There is no evidence substantiating a clear-cut need for multiple interventions. When even minimal criteria are used, few clients are elegible for more than one or two discrete interventions (28). If many

interventions are used, it will not be possible to know which of them was responsible for the observed results, whether good or bad; hence, little knowledge useful for the future will have been gained.

Specification of Goals

A diversity of treatment goals has become increasingly acceptable in the treatment of alcohol problems, even with respect to the level of alcohol intake (37). Treatment in this field may also appropriately aspire to goals in other areas, such as physical, or emotional, well-being, or vocational functioning (e.g. 6, pp. 192-202). Not all interventions are likely to achieve all goals. Marital counselling, for example, may achieve a better basis for a relationship without necessarily affecting either the level of alcohol intake or the employment status of the client. Clearly its effectiveness, and those of other interventions, must be specified in terms of the goals it is intended to, and is likely to, achieve.

Discussion of the need for specification of candidates, interventions and goals has been purposefully limited. These matters have been thoroughly rehearsed elsewhere. Of considerably greater importance for everyday research, and much less discussed, are various methods of determining the outcome of treatment, and of aligning candidates, interventions, and goals. Contrary to what many believe, these are not necessarily complex matters and do not constitute an insuperable barrier to matching research in the clinical setting.

A Range of Techniques for Determination of Outcome

Implicit in much of the foregoing is the need to make some determination of the outcome of treatment. If one is to be concerned with goals, one will wish to know whether the goals specified have been met. Knowledge of outcome is the only way of deciding whether a match has been achieved, since a successful match implies a positive outcome with respect to one or more explicitly-stated goals. Therefore, the astute matching programme must have, or develop, the capability of making some determination of outcome.

It is at this point that many may become discouraged. They think primarily in terms of the usual mechanism for determining outcome in research studies, *the individual follow-up interview* six months to one year after treatment. Such a prospect often appears overwhelming; among other things, the simple location of clients, particularly in this field, is an extremely difficult task. Even when located, the cooperation of the clients may not be forthcoming. Few treatment programmes feel they have sufficient personnel to engage in such studies, on account of the enormous demands of clinical work.

But if the clinical load of a programme is reduced somewhat, since the programme is interested in matching and has become selective about whom it treats, enough time may be mobilized to assign at least one staff member to follow-up. Funding agencies may not look askance at this, as it is obvious that knowledge of client outcomes is highly desirable. Nor does the interview of the client need to be elaborate, in terms of the demands of empirical research.

While a follow-up interview is perhaps the optimum means of assessing outcome, there are other methods which are both valid and more manageable. A programme which operates largely or in part by referral to other agencies can derive some measure of its success simply by discovering the *percentage of referrals completed.* This can even be done within an organization. For example, it has been found that both demographic and psychometric variables predict the rate of appearance for treatment of clients referred from the Assessment Unit to the treatment programmes of the Clinical Institute (5). A simple telephone call, or a postal card notification system, may be all that is required to utilize this technique of determining outcome.

However, given the general service delivery practice of admission directly to treatment programmes, other measures may be more appropriate. Once a client contacts a treatment agency a number of factors may determine whether or not he remains in contact and accepts the services of the agency, or whether he undergoes *attrition.* Some may be general factors, having to do with his perceptions of how he is dealt with by programme pesonnel, how sincere their interest in him might be, and

so forth. For example, it has been shown that such simple expedients as letters and telephone calls may be quite effective in reducing attrition (38, 39). Obviously these techniques have more to do with good clinical practice than with the cogency of the client-intervention match. Nevertheless, successful matching is clearly a factor in preventing attrition from programmes. In an exhaustive review of methods for "engaging the alcoholic in treatment and keeping him there," one of the seven cardinal guidelines derived from accumulated experience was to "offer a variety of treatment modalities to the patient and apply that which is best suited to him rather than that which is easiest or simply happens to be available" (40, p. 187).

Thus, while it is not perfect (neither, of course, is a follow-up study), the examination of attrition may be an extremely useful indicator for programmes as to whether they are providing appropriate services for clients. This is well substantiated in the literature. For example, it was found that 94% of field independent subjects dropped out of Alcoholics Anonymous when referred (41); conversely, field independent subjects were significantly more likely to remain in insight psychotherapy (42). Based upon such findings from studies of attrition, it would be quite reasonable in practice to refer field independent subjects to psychotherapy and not to A.A. Although the measurement of field independence is not a particularly difficult matter, it may be beyond most programmes; the point, however, is that by examining the differential characteristics of clients who remain in their programme and those who drop out, individual programmes might make major contributions to the understanding of matching, not to mention to the efficacy and efficiency of their own operations.

Finally, for those clients who complete treatment, one can utilize an *assessment of status at the end of treatment* as a measure of outcome. This will allow a careful assessment of whether the treatment provided has in fact achieved the goals intended. The Indiana Matching Project provides an example, albeit from another field, of the utility of this type of measure (19, pp. 242-44). Naturally, there are shortcomings in this method as well. For example, a study of smokers showed that a variable which did not differentiate between success and failure at the end of treatment, negative affect smoking (smoking in order to deal with bad

feelings), was nevertheless important in long-term outcome (43). Obviously, good results obtained at the end of treatment may not last. But this does not gainsay the utility of end-of-treatment assessments as an outcome criterion. At the very least, one can say that a poor result at the end of treatment is not likely to improve with time. Like all other techniques of determining outcome, this method has a definite if limited value.

In summary, while a follow-up study remains the optimum method of determining treatment outcome, there are several alternative methods which may serve the purpose of demonstrating whether a match has occurred. These include whether or not a client appears for a treatment to which he has been referred; whether he remains in treatment; and whether he has achieved his stated goals at the end of treatment. Since the notion of matching implies some measure of outcome, one or more of these measures must be utilized in matching research.

Alignments

Having briefly discussed what may be referred to as the "nuts and bolts" of matching -- assessment of client characteristics, specification of interventions, specification of goals, and the employment of various techniques of examining outcome -- it is possible to proceed to the heart of the matter. How might one put all of these separate pieces together? How does one align clients with interventions and goals in a coherent manner? Is it necessary to have some intricate theory about matters as abstruse as field dependence, or can one proceed more simply and directly? The title of this paper should suggest to the wary reader that the foregoing is a rhetorical question. In what follows, several rather straightforward perspectives on matching will be described. They depend upon measures and methods easily within the purview of any treatment programme.

Nor should this discussion to taken to constitute an exhaustive catalogue of methods of alignment; it is merely illustrative. There are many other relatively simple devices which can be utilized to investigate matching. For example, the MAST (Michigan Alcoholism Screening Test) can be self-administered by most

clients in five minutes or less. It has highly favourable psychometric properties, provides a wide range of scores in clinical populations, records information which is historically valuable, and yields a quantitative index of the consequences of alcohol ingestion in a given patient which can be used for many purposes as well as matching (for example, in following the progress of the client) (44, 45). MAST scores may well be predictive of success in various programmes. Low scores may suggest "controlled drinking" programmes and high scores abstinence programmes (46). More complex *schemata* than the use of such a simple instrument are also available (6, 47). In what follows, however, attention will be paid to three specific ways of making matches, utilizing (1) a social stability index, (2) a treatment goals inventory, and/or (3) precise criteria for admission to treatment programmes.

Social Stability Index

One of the most persistent dichotomies in treatment programming has been that between in-patient programmes and out-patient programmes. Although there has been an increase in recent years of alternative settings, such as halfway houses and various forms of partial hospitalization programmes, and although in theory any form of intervention ought to be available independently of residential status, the current situation is likely to remain unchanged for some time. Therefore it becomes useful to match clients effectively with in-patient or out-patient modalities.

On a purely rational basis, one would expect that the probability a given individual would sustain an out-patient programme would relate to the stability of other aspects of his life in the community. If, for example, he were regularly employed, not in legal difficulty, had a supportive family, and lived in stable quarters, it would be reasonable to suppose that he would be more likely to leave and return to the treatment setting on a regular basis, as is required in out-patient treatment. If, on the other hand, he were relatively "loose" in the community, and without stable support, it might be most prudent to begin a treatment regimen with an in-patient programme, partly in the hope that, during the in-patient period, the client's social circumstances could be stabilized so as to make a subsequent phase of out-patient treatment more likely to succeed. Research has generally supported this

viewpoint, and, for example, "poor social stability" is listed as an important part of the "composite picture of the alcoholic out-patient who is most likely to drop out of treatment" (40, p. 181).

An instrument which provides a measure of social stability has been in use at the Clinical Institute of the Addiction Research Foundation in Toronto for some time.* Called the Social Stability Index, it consists of seven simple demographic items of a type gathered routinely by many programmes (Figure 1). The index is so constructed that a score of 0-2 is possible for each item, and hence the total range of scores extends from zero to fourteen. Experience indicates that the instrument is easy to administer and to score, and that Clinical Institute clients achieve a wide range of results.

Though still under development (for example, the last two items have a low item-scale correlation and may be dropped) the instrument has proven generally useful (23).** Whether it would prove to be so in other settings, of course, remains to be seen. But its appealing logic, its promise of being able to distinguish between groups of clients best suited for in-patient or out-patient treatment settings, and the ease with which it may be administered recommend it for trial elsewhere. Using the Social Stability Index, or a similar instrument, together with some measure of outcome (in this case attrition seems particularly cogent), any treatment the ease with which it may be administered recommend it for trial elsewhere. Using the Social Stability Index, or a similar instrument, together with some measure of outcome (in this case attrition seems particularly cogent), any treatment programme should readily be able to determine whether or not social stability is a matching variable for its particular services. The probability is that in some settings it will be, and in others it will not be. Such an outcome would illustrate the

*This instrument, as well as the Treatment Goals Inventory and the Treatment Programme Criteria, were developed by Harvey A. Skinner, Ph.D.

**Its reliability estimate is .74 for the 5 item scale, which is quite acceptable for so brief an instrument.

sensitivity of matching to different settings, and constitute an argument for multifocal treatment research unrestricted to a few large centres.

Treatment Goals Inventory

Stress has already been placed upon the importance of specifying the goals of treatment for a given individual. Though it is unusual to find the goals of a particular treatment programme explicitly stated, programme personnel are often aware that implied goals exist, and with encouragement can usually state them in relatively clear and unambiguous language. Clients may then survey the goals of available treatment programmes and, by selecting those most congruent with their perceived needs, indicate which programme might be most appropriate for them. An advantage of this method is that it allows clients to choose between a number of treatment programmes without developing an extensive understanding of the methods employed by each and their theoretical rationale. Such an understanding, while desirable, may not be feasible in the ordinary clinical setting. A goal inventory, however, is rapidly and easily administered and provides an excellent background for a discussion of differential assignment with the client. In the absence of proven methods of matching clients to programmes, client self-selection is eminently defensible (8) and its results are often both surprising and cogent (48). Attention to client needs as indicated by a similar survey technique has resulted in greater client satisfaction (49).

An additional advantage is the active involvement of the programme itself in explicitly stating its goals. In a sense, this exercise activates principles of community organization: members of the treatment community participate as equals to determine a rational distribution of the clinical burden. It is helpful if a single individual with the ability to express abstruse material in relatively concrete terms takes direct responsibility for the development of the items of the inventory and ensures as little overlap from programme to programme as possible. One helpful way of encouraging the production of goal statements is to ask programmes to consider their most successful cases, and then to express in simple terms the goals that these individuals achieved as a result of their treatment.

Three goals per programme is a reasonable number; most programmes are quite capable of generating this many. Figure 2 illustrates a Treatment Goals Inventory in an agency currently involved with 14 separate treatment programmes; hence there are 14 x 3 or 42 goal statements. The answer sheet (Figure 3) directs the client first to rate each individual goal on a four-point scale (not important, somewhat important, important, very important) and then to rank-order all goals rated as either important or very important. The top five goals are utilized in making a placement decision. Since each goal selected is keyed to a particular programme, the client has in fact indicated which programme(s) he feels he needs.

It has been suggested (50) that an offer of alternative interventions of this kind may in itself be helpful to the client. Presumably, it reassures him that there exists a well-stocked therapeutic armamentarium, available to assist with his problem. In practice, certain treatment goals are selected more frequently than others. Table 1 records the frequency of goal selection by 99 clients (27, p. 121). Such an analysis provides some insight into the perceived utility of various programmes, and may be quite surprising; for example, in the sample studied here, a goal related to relaxation therapy was the most frequently selected. Data of this sort may be useful in planning the spectrum of programmes to be made available in a given community. Most importantly, however, the treatment goals inventory is a simple method of aligning clients, interventions and goals which can be used by any programme.

Exploring whether this sort of self-selection produces superior outcomes to other methods of selection is a worthy clinical research activity. It would obviously be strengthened by examination in a multiplicity of settings. For example, certain populations of clients may do well with self-selection, while others may not; likewise, it may be possible to choose clients for certain programmes on the basis of self-selection, while clients are better chosen for other programmes in other ways. Only a broadly-based clinical research effort can approach the resolution of such questions.

Treatment Programme Criteria

Thus far, the use of single measures for the selection of a specific intervention, such as social stability or selected treatment goals, has been discussed. Obviously, the use of *multiple* measures would be likely to enhance the power of the selection process. Even combining the two methods already discussed would be preferable to the use of either alone. For example, even if a particular client's high social stability score suggested suitability for an out-patient programme, it would be unwise to send him to one whose goals did not appear among his top five. If his goals strongly indicated a preference for a particular in-patient programme, he might better be so assigned. Thus, explicit criteria are a considerable aid to judgment, but do not preclude the necessity of its application in individual cases.

Such measures as social stability, treatment goal preference, and many others can be combined into a mosaic or pattern which specifies the criteria for admission to given treatment programme. Table 2 lists the criteria which were utilized for the selection of clients for an in-patient alcohol programme (27, p. 135). In addition to the two measures already discussed, both psychometric measures and practical prerequisites were employed. The programme felt it was specifically able to deal with problems of interpersonal strife, depression, introversion, and denial. Accordingly, relevant test-measured attributes were gathered in the assessment of clients and employed in the selection process. Five other practical conditions were also specified. The same process of consultation with treatment programmes, and the same need for an individual capable of translating the views of programme personnel into concrete terms, is as relevant to the realization of treatment programme criteria as to the evolution of treatment goals.

Assignment to a particular treatment programme accordingly becomes a matter of matching the known characteristics of the client against the profile of programme criteria. The client is referred to that programme whose criteria most nearly match his needs and attributes. The dynamics of such choices are schematically illustrated in Figure 4, which sets criteria for another programme within the context of a flow diagram (27, p. 125). As knowledge in the field

increases, the profile of a suitable client for a given programme is likely to expand considerably. Table 3 shows client characteristics which have some substantiation in the literature as indicators of whether or not a given individual is likely to be a successful affiliate of Alcoholics Anonymous.

The impact of the development of such criteria may well be imagined. Stating them explicitly greatly clarifies the nature of a given programme, or a group of programmes. It enables a programme to concentrate its efforts upon clients who are highly likely to be responsive to them. This in turn should make clinical work less onerous and more rewarding, and prevent the staff "burn-out" which is so sadly characteristic of the field. Availability of a set of criteria from all programmes in a community might have such desirable effects as encouraging cross-referral, as well as providing an inventory of available services and a basis for future planning.

Such criteria should be the subject of continuous refinement and revision. By relating specific criteria to one or more of the outcome measures discussed above, personnel of a given programme can determine whether or not the criterion being used actually predicts success in their programme. Accordingly, it can be confirmed, or modified and retested. This type of empirical feedback mechanism is matching research of a most important and critical kind. Since treatment programmes and populations seeking treatment constantly change over time, programme criteria should never be set in stone but should be ceaselessly re-examined; and, since each programme is in some respects unique, it would be well advised to ensure that an examination of its criteria occurs.

In conclusion, the matching of clients with treatment programmes is currently seen as being of increasing importance. But it is crucial that this work not be relegated to a few large centres. A cooperative relationship should be developed between the experimental research of academic settings and the applied research of programme settings, so that the two can complement each other. Matching research can readily be mounted at the programme level, though particular changes in the design of the service delivery system and in patterns of funding would greatly facilitate the effort. Careful specification of clients, interventions and goals is

required and, since knowledge of a successful match requires knowledge of outcome, a measure of outcome must be utilized. While follow-up studies may be optimal, alternative means of exploring outcome such as referral completions, attrition from the programme, and status at the end of treatment may be used effectively. It is possible to develop simple, empirical methods of aligning clients with programmes and goals, such as social stability indices, treatment goal inventories, and, perhaps most appropriately, treatment programme criteria which utilize measures of this sort and others besides. The widespread employment of such methods will bring richness and variety to the treatment research effort, which otherwise might become arid, sterile, and irrelevant to the real world of the treatment programme.

It is perhaps well to recognize at the last that matching is not the exclusive property of the field of substance abuse. It has been widely used, and in many instances more completely developed, in other fields, such as medicine, education, corrections, and psychology generally (4, pp. 4-8). Indeed, in a sense, it is simply the embodiment of a more important and more fundamental philosophical principle, the principle of equity: unto each his due. A poetic comment has lately appeared which reflects both the need for matching on a broader plane and some of the difficulties involved, but which somehow -- magically, perhaps -- manages to resonate with the clinical situation (51):

> The people look at all the people they are walking around
> One being peaceful or horrid or lonely or bored
> Or pleasant and contented the right kind
> Of civilization could be good for all these people.
> And certainly food would be good for the hungry people
> And limitations must be placed on the greedy people
> And guns must be taken away from the aggressive people
>
> And medicine must be given to the ailing people
> And so on and each individual one of the people
> Who dreams every night (it is supposed) may be supposed
> To have the seething and the golden curiosity. How to organize the thing
> So that each of these people
> Is happy with it, happy with him, with her, and me
> And we also are, and it, and all, with them? That would be the day --
> How can it be with everyone feeling he is the main one and the germs there every day?

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FIGURE 1

Social Stability Index

Name _____ Total Score |___|___|

1. **Present Accommodation** (Item 13)

Code 2	if	Own House (4) or Apt./House (3)
Code 1	if	Room (2)
Code 0	if	None (1), Institution (5), Other (6)

2. **Family Contact** (Items 14-17)

Code 2	if	Daily (4) contact with <u>either</u> parents, spouse, children or relatives
Code 1	if	Weekly (3) contact with <u>either</u>
Code 0	if	Monthly (2), Less (1), None (0)

3. **Return to Live with Family** (Item 19)

Code 2	if	Yes (3)
Code 1	if	Maybe (2) or Does Not Apply (4)
Code 0	if	No (1)

4. **Regular Employment** (Items 46 and 47)

Code 2	if	Employed <u>full-time</u> for 12 months
Code 1	if	Employed for 6 - 11 months or part-time for 12 months
Code 0	if	Otherwise

5. **Job at Present** (Item 49)

Code 2	if	Yes (3)
Code 1	if	Maybe (2) or Does Not Apply (4)
Code 0	if	No (1)

6. **Job Changes** (Item 50)

Code 2	if	No job changes or Housewife, Student, Retired (89)
Code 1	if	One job change
Code 0	if	More than one change or has not worked (88)

7. **Legal Status** (Item 86)

Code 2	if	No legal problems (2)
Code 0	if	On Probation, Parole or Awaiting Trial (1)

FIGURE 2

TREATMENT GOALS INVENTORY

Listed below are a series of statements related to specific treatment needs and goals. Read each statement carefully and decide how important this treatment goal is for you. Circle the appropriate response on the accompanying answer sheet.

1. I need a structured inpatient program to learn how to live without taking drugs.
2. I want to make changes in my life style that I can continue back in the community.
3. I want to learn how to cope more effectively with my urges to drink.
4. I need someone who will know me and help in sorting out my situation.
5. I need to learn better ways of coping with my problems.
6. I want to argue less frequently with my family.
7. I want to learn how to communicate more honestly with my husband/wife.
8. I want to learn better ways of talking with others in a group.
9. I want to learn how to be tense less often.
10. I need help in organizing a more effective job search.
11. I want to learn how to enjoy my free time without using drugs or alcohol.
12. I want to learn how to manage my financial affairs.
13. I want to learn how to improve my physical fitness.
14. I want to take Antabuse or Temposil and stop drinking completely.
15. I would like to learn more about attending Alcoholics Anonymous (A.A.) meetings.
16. I want to stop my illegal use of narcotics.

17. I want to become free of narcotics within 6 months.

18. I want to stop drinking completely.

19. I want to stop my nonmedical use of drugs.

20. I want to work on my drug problems in an inpatient program with people my own age.

21. I want to understand the conditions under which I tend to drink.

22. I need a half-way house where I can learn how to handle my drinking problems.

23. I would like to have one counsellor I can count on to discuss my problems and concerns.

24. I want an inpatient program that will help me deal with my drinking problems at work.

25. I want a therapist to help me develop a greater awareness of my alcohol (drug) dependence.

26. I want family counselling to help us deal with problems around my drinking or drug use.

27. I want a residential program where I can learn how to get along with others.

28. I need counselling with my husband/wife regarding problems related to my alcohol or drug use.

29. I want to learn how to feel at ease with other people.

30. I want to be able to improve my sleeping patterns.

31. I want to explore new career-educational possibilities.

32. I want to learn how to enjoy my free time along with my other responsibilities.

33. I need long-term (6 months or more) methadone support.

34. I want a program where I can gradually decrease my dependence on narcotics.

35. I want to stay in a half-way house and develop new interests outside of drinking.

36. I need someone to help me with day-to-day problems like finding a place to stay.

37. I want an inpatient program that will involve my employer.

38. I want a therapist to help me look beneath the surface and find better ways of handling my problems.

39. I need a temporary change (inpatient program) to start working on my alcohol-drug problems.

40. I want to learn how to relax in everyday situations.

41. I want to learn ways of making my work more satisfying.

42. I want to learn how to spend free time out of my home in the community.

FIGURE 3

TREATMENT GOALS INVENTORY ANSWER SHEET

Circle the appropriate response for each goal.

	0	1	2	3
	Not Important	Somewhat Important	Important	Very Important
GOAL 1.	0	1	2	3
2.	0	1	2	3
3.	0	1	2	3
4.	0	1	2	3
5.	0	1	2	3
6.	0	1	2	3
7.	0	1	2	3
8.	0	1	2	3
9.	0	1	2	3
10.	0	1	2	3
11.	0	1	2	3
12.	0	1	2	3
13.	0	1	2	3
14.	0	1	2	3
15.	0	1	2	3
16.	0	1	2	3
17.	0	1	2	3
18.	0	1	2	3
	Not Important	Somewhat Important	Important	Very Important

		0	1	2	3
		Not Important	Somewhat Important	Important	Very Important
GOAL	19.	0	1	2	3
	20.	0	1	2	3
	21.	0	1	2	3
	22.	0	1	2	3
	23.	0	1	2	3
	24.	0	1	2	3
	25.	0	1	2	3
	26.	0	1	2	3
	27.	0	1	2	3
	28.	0	1	2	3
	29.	0	1	2	3
	30.	0	1	2	3
	31.	0	1	2	3
	32.	0	1	2	3
	33.	0	1	2	3
	34.	0	1	2	3
	35.	0	1	2	3
	36.	0	1	2	3
	37.	0	1	2	3
	38.	0	1	2	3
		Not Important	Somewhat Important	Important	Very Important

		0	1	2	3
		Not Important	Somewhat Important	Important	Very Important
GOAL	39.	0	1	2	3
	40.	0	1	2	3
	41.	0	1	2	3
	42.	0	1	2	3
		Not Important	Somewhat Important	Important	Very Important

Of all the treatment needs and goals, listed the five which are most important to you. That is, review the statements you rated as (3) Very Important or (2) Important, and pick out the top five. Write the statement number beside your choice.

1st. choice _____
2nd. choice _____
3rd. choice _____
4th choice _____
5th choice _____

FIGURE 4 Decision Schema for the OPD Marital Therapy Program

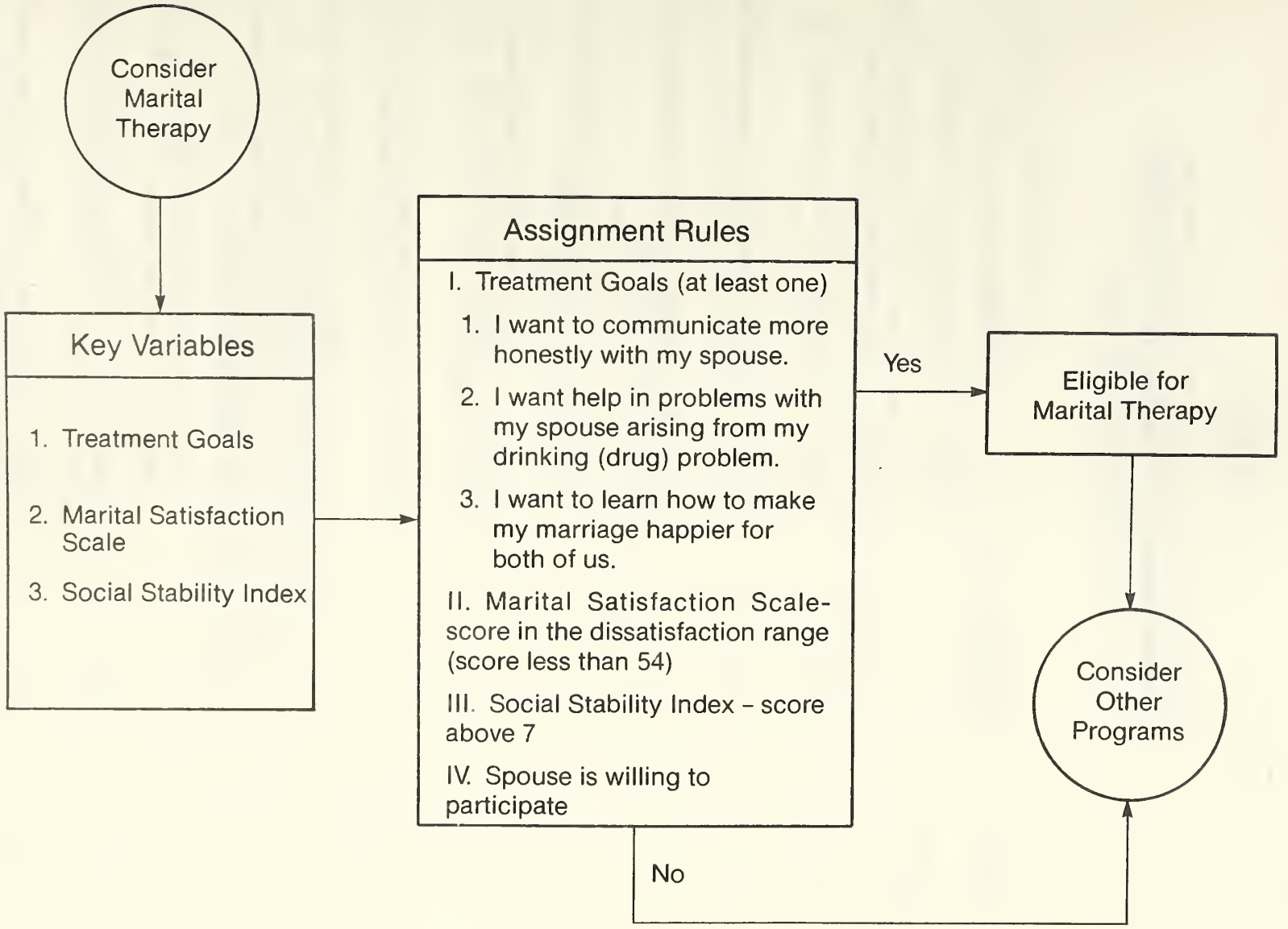
Consider Marital Therapy
Key Variables
1. Treatment Goals
2. Marital Satisfaction Scale
3. Social Stability Index
Assignment Rules
I. Treatment Goals (at least one)
1. I want to communicate more honestly with my spouse.
2. I want help in problems with my spouse arising from my drinking (drug) problem.
3. I want to learn how to make my marriage happier for both of us.
II. Marital Satisfaction Scale- score in the dissatisfaction range (score less than 54)
III. Social Stability Index - score above 7
IV. Spouse is willing to participate
Yes
Eligible for Marital Therapy
Consider Other Programs
No

TABLE 1

Treatment Goals Most Frequently Rated as Important or Very Important by 99 Clients

Rank	Frequency	Statement
1	36	I want to be tense less often. (Relaxation).
2	27	I would like to have someone available to discuss my problems and questions. (Primary Care).
2	27	I want a therapist to help me sort out my problems. (Individual Therapy).
3	26	I want a therapist to help me understand why I drink or take drugs. (Individual Therapy).
4	24	I need a structured program to help me stop drinking. (Alcohol Ward).
5	21	I want help in finding a career that will be more satisfying. (Vocational Rehab.).
5	21	I want to change my usual enviroment to a structured program and work on my drinking. (Alcohol Ward).
6	20	I just want to talk to someone once in a while who will know my situation. (Primary Care).
7	19	I want to learn how to control my drinking. (Controlled Drinking).
8	18	I want to talk to a therapist about my doubts and fears. (Individual Therapy).
9	17	I want an in-patient setting where I can talk to others with drinking problems. (Alcohol Ward).
10	16	I want to learn to feel at ease with other people. (Group Therapy).
10	16	I want to learn how to relax in social situations. (Relaxation Training).

TABLE 2

Treatment Programme Criteria for Admission to the Former In-Patient Alcohol Treatment Programme

I. Treatment Goals (at least one)

1. I need a stuctured programme to help me stop drinking.
2. I want an in-patient setting where I can talk to others with drinking problems.
3. I want to change my enviornment to a structured programme and work on my drinking.

II. Social Stability Index: score below 8.

II. Affective-Behavioural Problems (at least one).

1. BPI* Interpersonal Problems Scale -- score above 10.
2. BPI Depression Scale -- score above 9.
3. BPI Social Introversion Scale -- score above 7.
4. BPI Denial Scale -- score above 5.

IV. Pre-requisites

1. No major medical complications.
2. No major psychiatric disturbances (not psychotic)
3. Not undergoing active legal processing (not on trial)
4. Unable to maintain sobriety on an out-patient basis.
5. A minimum of six months since last residential treatment.

*Basic Personality Inventory

TABLE 3

A Summary of Individual Attributes Which May Be Associated with Differential Affiliation with Alcoholics Anonymous

Attributes of Successful Affiliators	Attributes of Unsuccessful Affiliators
Male	Female
Over 40 years of age	Under 40 years of age
White	Non-white
Middle or upper class	Working class
Socially stable	Not socially stable
Firstborn or only child	Other birth order
Heavy drinking history	Moderate or sporadic drinking history
Physical dependence on alcohol	Not physically dependent on alcohol
Not psychotic	Othe psychiatric diagnoses
Authoritarian personality	Other personality configurations
High affiliative needs	Normal affiliative needs
High group dependency needs	Normal group dependency needs
Proneness to guilt	Not guilty
External locus of control	Internal locus of control
Field dependent	Field independent
Lower autokinesis scores	Higher autokinesis scores
Cognitive simplicity	Cognitive complexity
Low conceptual level	High conceptual level
Formistic thinking	Other cognitive patterns
Right hemispheric lateralization	Left hemispheric lateralization
Left-handed or ambidextrous	Right-handed
Existentially anxious	Not existentially anxious
Conformity orientation	Other orientations
Deindividuated	Not deindividuated

Chapter Four

SPECIFYING THE SHELL

by Frederick B. Glaser

Introduction

Two basic assumptions of the core-shell treatment system are 1.) that access to what has been called "definitive intervention" ought to be limited, and 2.) that assignment to "defintive intervention" ought to be discriminant. Put somewhat more simply, not everyone should be treated; and those who are treated should be given the kind of treatment that will work best for them. These are reasonable assumptions (though they are no more than that) and are supported by a variety of different lines of evidence (see especially chapter 5, volume II on assessment).

In order to proceed further, certain implications of these basic assumptions as they apply to "definitive intervention" programmes must be elaborated in greater detail. Very basically, if "definitive intervention" is to be limited to certain clients, the parameters of that limitation must be carefully spelled out. It is clear that this limitation will be imposed on two types of individuals: those who do not require "definitive intervention," and those who cannot benefit from it. The identification of individuals who do not require intervention (either because they do not have a problem with drug or alcohol abuse, the two generic problems which the system addresses, or because the nature of degree of the problem which they have is such that it does not require "definitive intervention" but is likely to respond to primary care) is not highly dependent upon the available "definitive intervention" resources and will not be further discussed here. The same is true of persons who cannot benefit from intervention.

More germaine to this particular assignment is the question of what to do with an individual who has been identified as having a relevant problem which appears unlikely to respond to primary care alone. For this individual the issue is what kind or kinds of "definitive interventions" might be appropriate. Preliminary answers to this question have been outlined in several documents. The basic purpose of this paper is to provide a more detailed answer.

It must be said at once that such an answer, however detailed, can only be tentative. Very little work of any kind has been done on the discriminant assignment of clients to treatment programmes. Furthermore, in the final analysis, valid discriminant assignment can result only from extensive follow-up studies which determine how individuals with given problems responded to given treatment programmes. Such studies are planned. In the interim a reasonable and detailed account of how to assign clients differentially to interventions needs to be constructed on an *a priori* basis. This is required both in order to proceed with given clients, and in order to provide a baseline *schema* against which to make those changes in the assignment process which will be suggested by the follow-up studies. That such changes will necessarily occur is no derogation of the original schema, which admittedly must be arbitrary; it is expected that changes in the assignment schema will occur each time the results of follow-up studies are analyzed. Such change is a basic part of the design of the system. The point is, however, the system requires a starting point. Guidelines must exist when the question "what sort of treatment?" arises with the very first client.

Modularization of the Shell

To some extent the guidelines governing assignment to treatment will be shaped by the programmes constituting the "shell" of the core-shell treatment system, both ideally and in reality. Ideally, what is envisioned is a modular or unitized shell. By this is meant that the programmes in the shell ought to be highly specific. They should deal with a particular problem in a particular manner and produce a particular outcome. If a given individual has more than one problem, the

separate problems should be dealt with by combinations of shell programmes, used either concurrent or sequentially by the client to achieve his ends.

The degree to which the programmes in the shell can be modularized is the degree to which redundancy in the treatment system can be reduced and the degree to which a maximally flexible treatment planning process can be implemented. To have more than one type of treatment intervention which purports to deal with the same problem in the same sorts of individuals makes little sense (unless one is contemplating an experiment in which the relative or differential efficacy of the two programmes is to be tested). To have a variety of programmes subserving *different* problems enhances the probability that the system will deal effectively with most problems which are presented to it.

Programmes which deal with more than one problem pose serious difficulties for such a system. There are two major ways in which programmes may serve more than one problem. One is by combining a particular programme which serves one problem with a setting which serves others.

To illustrate: programmes currently exist which combine residential status with certain kinds of intervention. If one becomes resident in such a programme, one receives that particular kind of intervention. But the indications for residential placement and the indications for that kind of treatment intervention -- say, group therapy -- may be quite different. Let us suppose that the principal problem requiring residential placement is situational, that is, there are things in the individual's environment which militate against the cessation or modification of his drug-taking behaviour if he is not removed from it. Let us further suppose that the principal problem requiring group therapy is that an individual has difficulty relating in the context of small groups. A given individual may have either or both of these problems. It is tempting to say that if he has both problems, a programme combining both residential placement and group therapy would be ideal.

Unfortunately, this involves the further difficulty of assuming, in that instance, that his situational difficulties and his difficulties in relating in small

group contexts will be coterminous; that is, they will resolve themselves simultaneously. This is unlikely to be the case. Therefore even for the person with both problems the most efficient utilization of resources would involve both residential placement and group therapy, but in different modular units of the system. Thus he might become a resident in a halfway house, there to remain until his situational difficulties were resolved; and he might also participate in group therapy until such time as his small group difficulties were resolved. The importance of modularizing these two interventions is that he could leave either independently when the goals of either were achieved, without having to leave the other.

In the ideal shell, therefore, residential placement *per se* would be available, unalloyed with any other kind of intervention; likewise, group therapy *per se* would also be available. This would allow a combination of either residential placement or group therapy with any other kind of intervention that a given individual required. In the spectrum of treatment programmes which currently exists, there are many instances in which settings and sevices are coupled. To the maximum extent possible an attempt to uncouple them should be made in constructing the shell.

While some programmes may resist modularization by inextricably combining settings with interventions, other programmes may resist modularization by purporting to address a large number of problems. They may be seen by their proponents as accomplishing a wide variety of ends, and in some instances as being essential in every case and for every individual. The core-shell system as a whole does not deny that this may be so. However, it reserves this type of general, all-purpose intervention for the primary care module of the core. It holds that each case requires to be managed on a continuing basis, and that in this sense each case requires primary care. (Indeed, all core functions apply to all clients; all will require assessment and research as well as primary care).

But a basic assumption of the core-shell system is that the core and the shell are different; and one of the basic differences has to do with the generality of core functions and the specificity of shell functions. The interposition of assessment between the core and the shell makes sense in this context; if a function is a general

function there is no need to assess anyone as to their need for it, since everyone needs it. But once a function is viewed as a specialized function an assessment is required by definition, since this function is not for everyone; the purpose of the assessment is to tell whom it is for, and whom it is not for. Then only those persons who to a high degree of probability require the services of highly specialized and costly personnel and/or equipment shall have access to that particular function. This seems a reasonable and parsimonious arrangement.

Unfortunately there are varieties of "definitive intervention" which resist ready analysis in terms of the designation of the specific problem upon which they are targeted, or perhaps ought to be targeted. To some extent, this is a function of history. Interventions which were originally intended to serve one specific purpose are often subsequently viewed as serving many purposes. For example, according to one version of the history group therapy, it was originally designed to assist in the transmission of information about a specific medical problem (phthisis, or tuberculosis) among the patient group. Psychoanalysis, to use an even more extreme example, was originally developed to deal with neurosis (which at that time was a specific and delimited concept). The scope of both has been so greatly enlarged that it is unusual now to find any material on the *indications* for group therapy or psychoanalysis (or a number of other types of intervention) in standard works. They are felt to be indicated for virtually everything, and there are few solid contraindications.

To avoid extended argument,let us say that it is a moot point whether this is so. In order to test whether it may be so, clients for whom a meticulous analysis of problems has been carried out would have to be subjected on an experimental basis to both this treatment and an alternative (or alternatives) and then followed for a suitable period of time to determine outcome. This does not seem to have been done. Indeed, the core-shell system may afford the first realistic opportunity of carrying out such studies on a regular and large-scale basis. However, even for this to be done it is necessary to formulate an initial hypothesis, of the following type: X kind of intervention is particularly suitable for Y type of problem. This hypothesis

then becomes testable, and can serve as the initial basis for a careful evaluation of the therapeutic modality.

If one, particular problem for which a specific intervention is especially pertinent can be identified and proven out through an experimental paradigm similar to that outlined, then that specific intervention has a place in the system which is assured. If subsequently it proves also to be adequate for other kinds of problems, well and good; but that can await the future. Both prudence and the requirements of the model suggest proceeding one step at a time, and the general absence of relevant research in the treatment field also suggests the wisdom of such a course. In practical terms, what this means is that one cannot accept proposals alleging that no specific indications for a given intervention can be put forward because it does everything so well. The response must be that, although this may be the case, it is necessary to specify *one* problem to which the intervention addresses itself particularly well, so that when individuals with that problem are encountered they can be referred to that intervention *as an initial step in the overall process of learning about the matching of clients and interventions.*

Hence the first part of the task of specifying the shell is to modularize it by separating interventions into their essential elements (e.g. separating settings from services) and by arriving at highly specific ideas about which problems these discrete interventions are designed to deal with. In a sense what is needed are two parallel taxonomies: one of problems and one of interventions. A rough attempt at this has been made in the next chapter. What is now required is a more detailed approach based upon more information.

It should also be noted that the next chapter, the "Problem-Indicator-Intervention Matrix", suggests a number of kinds of interventions (e.g. logotherapy) which are not currently provided for, as well as listing a number of problems for which no specific intervention is readily apparent (e.g. misuse of prescription drugs). Advice is required on whether or not to retain existing interventions and whether or not to contemplate adding new ones. The individual carrying out the task of specifying the shell should not consider existing programmes sacrosanct, nor should

he preclude the notion that new components may be added. Much will depend upon the reasons for doing either, including the relative precision with which problems that interventions address may be specified.

Specifying Indicator and Facilitator Variables

The second part of the task has to do with making the bridge between problems and interventions. Given that one has (or could make) available certain specific interventions, and given that these interventions are targeted at certain problems, how would one recognize the presence of these problems in given individuals? This would be necessary to operationalize the assignment of clients, and the recognition of the problem will be a major part of the assessment process. Here one is discussing what are refered to in the "Problem-Indicator-Intervention Matrix" as indicator variables, which may be defined as those measures which identify whether or not a given problem is present. Without going into great detail, these measures should meet certain of the principles which have been developed for the assessment process (see chapter 5, volume II) and should produce data which is simple, objective, consistent, quantifiable, and recordable. In general, then, the indicator variables will consist of psychometric, psychophysiologic, perceptual or biological tests. A premium will be place on those measures which are simple to use and do not require the presence of highly skilled personnel, for obvious reasons.

While the indicator variables will tell whether or not a given problem exists, there is another class of variables which require specificaton. This is largely a function of the fact that there may be more than one intervention which can be specified for a given problem. At first glance, this seems a contradiction of the basic assumption of specificity, but it really is not. The fact is that some of the problems which will be faced by the treatment system are extremely broad, such as alcoholism and narcotic addiction. While a specific indicator variable, such as a urinalysis, may tell us whether or not a problem with drug abuse exists, by itself it will not tell us which of the available approaches for that problem one ought to utilize in a given case. For example, a positive urine for opiates might suggest *either* urine surveillance or methadone maintenance; what is needed is a secondary

set of variables which will help to discriminate between these two approaches. As such variables facilitate differential assignment, they have been termed facilitator variables in the "Problem-Indicator-Intervention Matrix." The reason that more than one approach to the same problem may be tolerable is that, within broadly defined problem areas, there may exist subgroups which do particularly well with particular interventions. To use a common example, it is well known that some persons who abuse alcohol do well in A.A. and others do not. It would be highly desirable to identify what the facilitator variables are in this instance. With fully adequate specification of both indicator and facilitator variables, it should be possible to bridge the gulf between problems and interventions with precision.

Specifying the Process of Intervention

The third part of the task involves a specification of the process of the intervention. This is necessary both for informational purposes (so that others may know what is involved) and for research purposes (so that the process may be kept fairly uniform to examine its effectiveness, or so that if changes are made in the intervention the direction of those changes can be specified). Such things as the qualifications of the individuals performing the intervention, the number of sessions required, the amount of time per session, the intervals between sessions, the technique to be employed, and so forth, need to be described, albeit briefly. Wherever possible simple measures which are capable of monitoring the process of the intervention should be specified.

Specifying Goals

The fourth part of the task has to do with the expected outcomes of the interventions: what are they, and how can they be measured? Once again it is necessary to be as specific as possible. Little thought is usually given to the goals of treatment. Interventions are sometimes viewed as being aesthetic enterprises which are valued for their own sake. In the core-shell system this luxury cannot be afforded, and specific goals will need to be outlined. In many instances, the problem analysis will also imply the goals, and the indicator variables will be utilized to measure whether or not the goal has been attained. However, there may be

instances in which this is not the case. A part of the task is to identify any such instances and to suggest remedies. This part of the task will be particularly helpful in building the follow-up portion of the programme in the future.

Summary

To summarize, there are four parts to the task:

1. To make an analysis of both available and desirable interventions, separating them into basic, modular components of the shell of the treatment system and specifying which particular problem each of the interventions addresses;

2. To make an analysis of how a given problem may be recognized at assessment, and what particular variables beyond those which identify the presence of the problem are critical in assigning a given individual to a particular intervention, that is, to specify what have been termed the indicator and facilitator variables;

3. To develop a description of the essential elements of the process of intervention, that is, to specify it so that any alterations in the process which may occur will become apparent; and

4. To develop for each intervention to be utilized a statement of the goals of the intervention and how achievement of those goals might be measured.

It is a large task. But, despite the length of this description, it is really relatively straightforward. It merely involved asking certain questions of a given intervention, such as: to which problem does it address itself? How would one recognize whether a given individual had this problem? What other information is required to know whether a given individual with this problem is suitable for this intervention? What exactly is the intervention; what is done to the individual, by whom, over what period of time? What is the outcome hoped to be, and how might

one tell whether it has been achieved? These seem to be reasonable questions. If one begins with a problem not being addressed rather than an intervention which happens to be available, the questions are virtually the same.

In approaching the task, numerous resources are available. There is a vast, if generally unsatisfactory, literature on interventions. More importantly, there are likely to be individuals expert in matters pertaining to the various interventions who can be consulted. In some respects this may be preferable to exclusive reliance upon individuals within the parent institution, who for a variety of reasons may be less objective in their responses than disinterested outsiders. However, consultation with those individuals who would be likely to be carrying out the interventions once the system was implemented would be a natural part of the process of this task. Naturally, the difficult part will be to pull this all together into a coherent whole which will also have maximum utility.

Chapter Five

PROBLEM-INDICATOR-INTERVENTION MATRIX:

An Attempt

by Frederick B. Glaser

In the following material an attempt is made to connect the problems to which the Core-Shell Treatment System might address itself with the types of intervention which may be employed. Since the system represents an attempt to provide specific treatment for specific problems, some effort has been expended in the direction of specificity. This is viewed as the first step in a process, the end result of which will be a detailed and highly specific matrix for connecting problems and interventions. The efforts of many individuals will be required in order to realize a satisfactory result. The present material should be viewed merely as a point of departure.

However, this is more true of the *content* of the matrix than its form. Whatever the final content of the matrix might be, it will probably take the same form implied in these tables. The form is in reality a logical and sequential way of thinking about what the difficulties are that people face, how they can be identified, and what to do about them. Basically it asks four simple questions about a problem with which the treatment system may be called upon to deal:

1. What is the nature of the problem?

2. What is the simplest and most direct means available to indicate whether or not this problem is present in a given individual? (Indicator Variables).

3. What other factors are important either in terms of further specification of the problem or of the means of dealing with it? (Facilitator Variables).

4. What sort of intervention is most appropriate in dealing with this particular problem?

It is possible that in some instances this analysis will need to be implemented in reverse order; that is, one may need to start with a particular kind of therapeutic intervention and work backwards to discover what sort of problem that intervention most appropriately deals with. That this occurs may be due to an historical process of secondary autonomy applied to therapeutic interventions: though initially intended for certain highly specific problems, some interventions have become so generalized as to have taken on a life of their own and, in a certain sense, to appear to be justifications in their own right. Such therapies, of which psychoanalysis is perhaps the most outstanding example, are generally thought of as being "good for everyone" or as being indicated under all circumstances. In such instances, one might wish to ask of the purveyor of a given modality of therapy: to what particular problems does your method of intervention address itself? How would we most easily be able to recognize a person suitable for your method of intervention? What other information would assist in making a determination about whether this intervention is suitable in this instance? These questions will probably remain even though the conceptualization of the nature of the variables, the kinds of interventions employed, and the type of problems addressed changes markedly over time.

In addition, it should be recognized that what is being elaborated is a modular system; that is, many people may have more than one problem, and hence may require more than one type of intervention, either concurrently or sequentially. Finally, however the matrix is initially shaped, it will necessarily be arbitrary. The state knowledge regarding tthe assignment of patients to specific programmes is not advanced and can be expected to improve only when follow-up studies are begun. It is anticipated that repeated follow-up of patients and the use of many different kinds of experimental designs will be required before this matrix achieves anything resembling a final form.

PROBLEM - INDICATOR - INTERVENTION MATRIX

Direct Interventions*

Problem Area	Indicator Variables	Facilitator Variables	Interventions
Opiate abuse	Urinalysis Naloxone challenge	Type-Quantity-Frequency Drug Attitude Scales Demogr aphic variables	Drug-free evironment Urine surveillence Methadone maintenance Narcotic antagonists
Polydrug abuse	Urinalysis	Type-Quantity-Frequency Drug Attitude Scales	
Prescription Drug	Urinalysis	Type-Quantity-Frequency	
Alcohol abuse	B.A.C. Breathalyzer	M.A.S.T. Quantity-Frequency Index Preoccupation with Alcohol Definitions of Alcohol	Antabuse Controlled Drinking strategies (Apomorphine)

* Direct interventions are those which deal with, and attempt to modify directly, drinking or drug-taking behaviour.

PROBLEM - INDICATOR - INTERVENTION MATRIX

Indirect Interventions:*

Social Functioning

Problem Area	Indicator Variables	Facilitator Variables	Interventions
Interpersonal Problems One-to-One	Economy of Time Profile Goal Inventory	Social Stability Index Shipley Scale Organicity Index Introversion-Extroversion Self-Acceptance and Acceptance of Others	Individual Therapy Contingency Contracting Assertivenesss Training
Interpersonal Problems Small Group	Economy of Time Profile Goal Inventory	Self-Acceptance and Acceptance of Others Rod and Frame, EFT Reducer-Augmenter Scale Average Evoked Response	Group Therapy Social Skills Therapy
Interpersonal Problems Large Group	Economy of Time Profile Anomie Scales Goal Inventory	F-Scale	Milieu Therapy Therapeutic Community Dale Carnegie?
Marital Problems	Marriage Adjustment Inventory		Marital Therapy
Family Problems	Family Enviroment Scale		Family Therapy
Existential Problems	Purpose-In-Life Scale	Shipley Scale Organicity Index	Logotherapy Pastoral Counselling

* Indirect interventions are those that deal with problems of which drinking or drug taking behaviours are felt to be a consequence in particular individuals.

PROBLEM - INDICATOR - INTERVENTION MATRIX

Indirect Interventions:

Other

Problem Area	Indicator Variables	Facilitator Variables	Interventions
Affective Functioning	S-R Inventory Present Affect Reactions Zung Depression Scale		Chemotherapy Relaxation Therapy Activity Therapy
Sexual Adjustment	Freedberg Scale		Sexual Therapy
Vocational Adjustment	Strong Inventory?		Vocational Therapy
Leisure Time Adjustment			Recreational Therapy Leisure Time counselling
Acute Situational Problems	(History)	Social Readjustment Rating Scale	Residential Therapy
Chronic Organic Brain Damage	Organicity Index	Halstead-Reitan? WAIS?	Domiciliary Care
Medical Problems	Cornell Medical Index	Medical History Physical Examination	Medical Care

Chapter Six

THE ASSIGNMENT MODEL AND PROJECTED SHELL PROGRAMME NEEDS

by Harvey A. Skinner

The major focus of this chapter centers upon the assignment of patients to treatment interventions in the Core-Shell System. Five specific aims are addressed. First, an overview is given of the actual procedures used during Phase II for assigning patients to treatment interventions. These procedures are based largely upon rational considerations. Secondly, an investigation is conducted of the extent to which patients who were assigned to Primary Care only, Inpatient or Outpatient programs systematically differ on selected background variables. Then, a prototype statistical model is discussed that employs Basic Personality Inventory scale scores. This prototype model is one example of the direction the Assignment Model may take as placement decisions are based more upon empirical-statistical data. Fourthly, a summary is given of the percentage of patients who showed an interest in a particular intervention, as well as the percentage of patients who were actually assigned to that treatment program. Finally, these data are used, in conjunction with some additional information, to project needs for treatment resources in the Shell.

Assignment Model

Prior to the commencement of Phase II, each treatment program was contacted by the Research Module staff. Through a series of meetings, explicit criteria were specified for admittance to each program. These criteria are summarized in the Appendix. In brief, a set of three treatment goal statements was

developed for each of the 20 potential programs. Other criteria were noted with respect to certain background items and scales in the assessment battery.

Two key measures for assigning patients to treatments were the Treatment Goals and Social Stability Index. The Treatment Goals were designed to give the patient himself an important voice regarding what interventions should be considered. That is, from among the various problem areas an individual may have, the patient was asked to note the relevance of each treatment goal statement and then pick out the five most salient. This forced-choice format ensures that the patient will focus his perceived needs for for help. Lazare, Eisenthal and Wasserman (1) have termed this strategy a "Customer Approach to Patienthood". The Social Stability Index reflects a patient's work history, present accommodation, family contact and legal status. Patients who score high on this index have a considerable range of support mechanisms in the community. These individuals should prove to be good candidates for treatment on an out-patient basis. Conversely, patients with low social stability may require an in-patient program to sustain treatment. Note, from their extensive review of the treatment literature on alcoholism, Baekeland, Lundwall and Kissin (2) repeatedly found that "social stability" was positively related to outcome. Psychometric properties of the Social Stability Index are examined in chapter 7 of volume II.

Figure 1 presents a summary of the decision sequence for the Assignment Model. One begins with results from the patient's assessment profile. (This profile of scale scores and narrative summary is generated using the computing facilities at the University of Toronto.) Then, two general screening questions are asked. First, if medical problems have been identified during the routine physical examination, then this patient may be referred to Medical Clinics, Acute Medical Ward or Physiotherapy. These patients would not be considered for the other treatment programs until their medical complications have been dealt with. Similarly, patients who present with severe psychiatric problems (as assessed by the test battery) would be referred to the Psychiatry Department. There is a possibility that some patients may be referred to an outside psychiatric facility such as the Clarke. During Phase II, however, no patients were judged as needing a psychiatric referral.

A majority of patients would pass through the screening points for medical or psychiatric complications. Next, using the Social Stability Index, patients are differentiated either into an in-patient stream or an out-patient stream. Patients low in social stability (score 7 or less) would be considered for one of several residential programs. Individuals within the age range of 16-30 would be considered for the Drug Ward (4-S). alternatively, older patients would be examined with reference to the Alcohol Ward (4-W), 142 Spadina or Bon Accord. Not all patients would meet the entrance criteria for one of these programs. Patients in the out-patient stream, on the other hand, would be considered for any of the four OPD Programs. Next, all patients are examined for eligibility with respect to the Shell Modules. Subsequently, patients are considered for the OT Programs as well as Primary Care only. Thus, by the end of this sequence a list is compiled of programs for which the patient is eligible.

An example of the decision sequence within a particular program is given Figure 2 for the OPD Marital Therapy. The key assessment variables are: Treatment Goals, Marital Satisfaction Scale and Social Stability Index. In order for a patient to be eligible for Marital Therapy, four assignment rules must be satisfied. That is, the patient must have picked a Marital Therapy goal statement among his top five, scored within the disatisfaction range (less than 54) on Marital Satisfaction, scored above 7 on Social Stability, and the patient's spouse must be willing to participate.

During Phase II treatment combinations were restricted. The general rule was that a patient could receive only one definitive intervention. This limitation was imposed primarily for practical reasons. That is, not enough total treatment capacity existed to make multiple assignments without causing lengthy delays or waiting lists for available treatment slots. Two exceptions were:

1) NDP patients (Methadone Maintenance or Withdrawal) who were allowed *one* other assignment (Shell Module, OPD, OT);
2) all out-patients could combine either a Shell Module or an OPD Program with one Occupational Training Program.

Note, all patients received ongoing Primary Care support regardless of other treatment assignments.

Following the two-day assessment program, an assignment conference was scheduled on the third morning. These meetings averaged around 30 minutes in length. Present at this conference were the patient, Primary Care Worker, Assessment Care Worker and Supervisor (usually Dr. H. Skinner or Dr. R. Segal). Key findings from the assessment program were reviewed with the patient. Then, the discussion focused upon the most appropriate treatment program. The list of eligible programs was examined as well as current openings in the various programs. Sometimes the waiting period before a slot became available in a certain treatment program was an important factor. In general, there was surprisingly little disagreement among those present at the meeting regarding the best placement. Although explicit rules regarding assignment were developed (Figure 1 and 2), special considerations were taken into account at the meetings and a degree of flexibility obtained.

Furthermore, the patients reacted quite favourably to receiving feedback on the assessment findings. When anonymously asked if they had received adequate feedback, 79.8% of the patients responded "Yes", 14.6% "Somewhat", and only 5.6% "No". Many found the assessment and assignment process to be a period of self discovery and enlightenment. The following written patient comments are illustrative of this experience:

"It helps you to get hold of yourself and use your mind to sort out what makes you feel about life."

"It slowed down my thinking and allowed me to have a good, long look at myself."

"I found out my true self wasn't really as bad as I thought it was."

Patient Characterics and Treatment Assignment

Using multiple discriminant analysis,[1] an attempt was made to differentiate patients who were assigned to "Inpatient", "Outpatient", and "Primary Care Only" treatment programs. The predictor variables employed were: age, marital status, education, arrests for public intoxication, months employed in past year, employment type, accommodation type, and days drinking in past 2 months. One salient discriminant function emerged from this analysis, with the variables of age, education, employment type, and arrests for public intoxication having the highest discriminant predictor values. The discriminant function was able to correctly classify the treatment assignment accorded 66% of the patients admitted during Phase II. Patients assigned to "Primary Care Only" were more likely to be older, more poorly educated, of unskilled or labourer occupations, with a history of many arrests for public intoxication. "Outpatients" tended to fall at the opposite end of the scale on these characteristics. "Inpatients" resembled "Primary Care Only" patients with their scale values falling between those of "Outpatients" and "Primary Care Only" patients.

It should be noted that a similar multiple discriminant analysis applied to Phase I data failed to indicate any differences based on treatment assignment. That is, no combination of patient characteristics could be found that related in a systematic fashion to the treatment placement decision process in operation during Phase I. The regular C.I. intake and placement procedures were in effect during Phase I. With the implementation of a mini-Core-Shell System during Phase II, new treatment placement decision procedures were instituted which drew heavily on information collected in the Assessment Battery. As indicated by the discriminant function described above, these new placement procedures were related in a demonstrable and systematic fashion to the patients' presenting characteristics.

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[1] This procedure identifies the subset of variables that "best" differentiate among patients assigned to the three general programs. In the present case, the discriminant function model is employed in a descriptive rather than inferential mode.

Furthermore, when larger samples are available, it should be possible to demonstrate important differences among specific interventions (e.g., OPD Individual versus Family Therapy).

Prototype Statistical Model

A central principle of the Core-Shell System is the development of an empirically based statistical model for the optimal assignment of patients to appropriate interventions. The precise nature of this model will evolve through a program of validation studies, where criterion feedback in the form of treatment outcome and community follow-up data is related to the assessment battery. The efficacy of several different models will be compared including: (1) logical decision trees (e.g., Figure 1), (2) decision trees based on Bayesian probability estimates, (3) linear discriminant functions, and (4) linear prediction systems involving differential regression equations for selected patient subgroups.

An example of a prototype statistical model is depicted in Figure 3. Using a multivariate classification strategy (3), six distinct patient subgroups or "types" have been identified among Basic Personality Inventory profiles from patients tested during Phase I. This computerized strategy objectively determines subsets of patients who have similar highpoints on the BPI scales. Conceptually, one is hypothesizing that a number of distinct types underlie the population of alcohol and drug abuse patients who present at the Clinical Institute. The implication is that certain patient types will respond best to specific treatment modalities. Glaser (4) has called this supposition the "matching hypothesis". Indeed, the Core-Shell System is designed as a large scale test of this hypothesis.

A capsule description of each type is given in Figure 3. For example, the first type labelled "Withdrawn Depression" classifies patients who generally consider themselves to be inadequate, are pessimistic and self-effacing, report few friends and usually feel uncomfortable around others. The percentage of Phase I patients who are grouped together or classified according to each type is also presented in the Figure. That is, 14.5% of the patients were classified as the firt type; 12.8% as

the second type; and so on. Overall, 70.0% of the Phase I patients were categorized according to six types. The unclassified patients (30.0%) represent individuals who had relatively unique Basic Personality Inventory profiles.

This typology was used as a mechanism for distinguishing among patients tested during Phase II. Given an individual's Basic Personality Inventory Profile, this patient may be objectively classified according to the type he most resembles. In essence, one takes a patient's BPI profile and compares his pattern of scores to each of the six types. If his highest resemblance exceeds a minimum threshold value, then the patient is classified according to that type. These classification data were obtained as part of the computerized Assessment Summary report. The classification hit-rates ranged from 14.6% for type III, Impulsivity-Extroversion, to 6.3% for type VI, Suspiciousness-Depression. In total, 60.4% of the Phase II patients were classified. This hit-rate compares favourably with the Phase I values of 70.0%. Note, some drop in classification efficiency is expected since the Phase II patients represent an independent or cross-validation sample (3).

Given criterion feedback data on Phase II patients entering treatment, one may begin to establish links (shown as dotted arrows in Figure 3) between each patient type and the most appropriate intervention(s). Once a sufficient number of patients have passed through the core-Shell System, one may establish fairly precise probability estimates for these projected links. For example, with patients who exhibit impulse control problems (type III), research studies may demonstrate that the most effective intervention is a well structured Behaviour Modification or Contingency Contracting program.

Although the model depicted in Figure 3 employs Basic Personality Inventory data, the ultimate form of this approach will consider an extensive set of measures from the assessment battery. The use of the BPI is an example only. With the possible exception of experimental studies, treatment assignments will be based upon multiple assessment data (medical, psychological & social).

IV. Patient Interests and Programs Assigned

The Treatment Goals provide an important index of the degree to which patients request, or are at least interested in, the various treatment programs offered by the Clinical Institute. Table 1 summarizes these data.

If patients were only offered one treatment program, the 1st choice column estimates the distribution of treatment requests. Here, the top five choices are:

1. Individual Therapy (20.2%)
2. Alcohol Ward (20.2%)
3. Primary Care (10.1%)
4. Drug Ward (10.1%)
5. Relaxation Training (8.1%)

These five programs accounted for over two-thirds of the treatment requests. Individual counselling and a structured residential program for alcoholism were the two most frequently self-identified patient needs. Of interest is the trend for several programs to become salient at a lower choice level. For example, both Assertion and Relaxation Training become more important by the 4th or 5th choice. A reverse trend may be noted for other programs such as Individual Therapy and Alcohol Ward. Presumably, patients organize their needs for help according to several levels of immediacy. In this respect, few patients identified a treatment goal to become more assertive as their first choice. However, Assertion Training was reasonably popular as a secondary problem area.

The overall average percentages give an estimate of the central tendency with respect to patient-identified needs. This column ranks the top five programs as follows:

1. Individual Therapy (14.6%)
2. Alcohol Ward (12.7%)
3. Relaxation (12.6%)

4. Primary Care (10.9%)
5. Vocational Rehabilitation (7.6%).

Except for the interchange of Drug Ward with Vocational Rehabilitation, this ranking corresponds closely to the 1st choice list.

Note, the popularity of the three hypothetical Shell programs (Woman's Group, Controlled Drinking, Naltrexone) tends to be underrepresented by the figures in Table 1. This is because in the process of formulating their top five choices, patients were informed by the Assessment Workers that these three modules were not operational at present.

The number of patients actually assigned to each program during Phase II is given in Table 2. Primary Care Only received the greatest percentage of patients, viz.,

1. Primary Care Only (22.4%)
2. Relaxation Training (19.4%)
3. Alcohol Ward (16.3%)
   Individual Therapy (16.3%)
4. Drug Ward (9.2%)
   Vocational Rehabilitation (9.2%)

The number of patients assigned to Individual Therapy was curtailed slightly because of a considerable waiting period (usually over 4-6 weeks) before a treatment slot became available. In several instances, patients were placed in Relaxation Training who might otherwise have been assigned to Individual Therapy.

The Percentage of Patients Interested column in Table 2 records the instances that a patient picked a goal statement for this intervention among his top five. These figures provide a global measure of the popularity of each program among patient requests for help. The impact of the assignment model (Figure 1) and criteria (Appendix) are best demonstrated by comparing these patient interest

figures with the actual percentage of patients assigned. For example, 73.1% of the patients expressed an interest in Individual Therapy, while only 16 patients or 16.3% were actually assigned to this intervention. In most programs the impact is dramatic.

Finally, of the 98 patients assigned to treatment during Phase II, only 14 or 14.3% received a dual placement in addition to ongoing Primary Care Support. During the assignment conference, several patients were recommended for Antabuse and Alcoholics Anonymous.

Projected Shell Program Needs

There are two essential approaches for estimating program needs within the Shell. First, one may determine the frequency of certain problem areas among patients who present at the Clinical Institute, and then devise treatment programs to serve these patient needs. Alternatively, one may begin with a given treatment modality, specify the criteria for inclusion, and then survey a sample of patients to determine how many would meet these criteria. Both approaches have been applied during Phase II.

Patient Problem Areas

Treatment Goals

A useful source of information is the Treatment Goals selected by each patient. Since the goal statements were devised to map into existing treatment programs, some structure is placed upon the range of potential patient needs. That is, if one simply had asked patients to list their treatment needs, a more diverse list of statements might have been generated. However, the current Treatment Goals do span a wide range of treatment modalities.

In Tables 1 and 2, the popularity of treatment goals is summarized by treatment program. Recall that the five most frequently requested programs were Individual Therapy, Alcohol Ward, Relaxation Training, Primary Care and Vocational Rehabilitation. This set of programs is preserved when one examines the frequency

of specific goal statements, described in Table 3. The top-ranking patient-identified need is a desire to be "tense less often". Thirty-six patients out of 99 chose this statement among their top five. Physical tension and other manifest anxiety symptoms are frequently reported in the key findings from Assessment. However, from a program planning perspective, the treatment of "anxiety" related symptoms is problematic since no single treatment modality will suffice. In many respects, anxiety is akin to essential hypertension, which is a graded characteristic or abnormality that may result from a complex interaction of numerous factors.

Note, the Assessment Battery has three different anxiety measures: (1) present state, (2) fear of social situations, and (3) a predisposition to be anxious across many situations. Although further research is necessary, each measure has the potential of mapping into a specific treatment modality. For example, one may treat *acute* anxiety symptoms by chemotherapy and/or brief hospitalization, anxiety related to *social situations* by structured group interactions (e.g., role playing, assertion training), and longstanding, *chronic* anxiety problems by teaching specific relaxation techniques. A considerable range of scores[1] was observed on each measure during Phase II, which suggests that patients differ widely on the extent to which they experience either acute, social, or chronic anxiety-related symptoms.

Following the desire to obtain help for anxiety related symptoms, the next most frequent patient requests (ranks 2 and 3) centered around having an individual, either a Primary Care Worker or a therapist, present to assist the patient on a one-to-one basis. When selecting their treatment goals, patients were informed that a Primary Care Worker would not provide the intensive degree of involvement available in OPD Individual Therapy. Thus, it is interesting to find that certain patients prefer this lower level, more pragmatically-oriented degree of involvement.

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[1] State Anxiety Scale mean = 59.2, S.D. = 18.8, range 24 - 105
Social Fear Scale mean = 28.3, S.D.. = 9.0, range 10 - 48
BPI Anxiety Scale mean = 9.0, S.D. = 4.6, range 1 - 20.

A request for a structured, residential program to deal with alcohol-related problems was the fourth ranked need. Many individuals would seek an in-patient program because they needed a place to stay and/or wanted a period of enforced sobriety. About 35% of patients during Phase II either had no fixed address, lived in another institution, or had only a room. The fifth-ranked goal was a request for vocational upgrading. Of the 99 patients assessed, only 28% were gainfully employed. Of the remaining goal statements, it is interesting to note that 19 patients wanted to learn "how to control my drinking". Although this statement was designed for the Controlled Drinking program, there is potential ambiguity with respect to the word "control". To many patients, this statement may imply complete cessation of drinking. (The statement will be revised). Thus, this treatment goal reflects interest in a controlled drinking program and/or an abstainence oriented program (antabuse, enforced abstainence via a residential setting). Finally, 16 individuals expressed an interest in learning how "to feel at ease with other people".

In summary, the following list of patient-identified treatment needs may be extracted from the Treatment Goals:

1. reduction of anxiety related symptoms
2. individual counselling
   a) intensive involvement
   b) pragmatic involvement
3. structured residential program
4. vocational rehabilitation
5. controlled drinking or abstinence program
6. group therapy.

Within each category, one or more specific treatment modalities may be germane.

Basic Personality Inventory

Another method for identifying potential treatment needs is to examine the pattern of scores from measures in the Assessment Battery. For example, one may

focus upon various facets of psychopathology assessed by the Basic Personality Inventory. The classification results of Figure 3 estimate the frequency of occurrance or baserate of distinct problem areas among patients. The most prevalent area is Impulsivity - Extroversion (type III), which represents approximately 15% of patients. For these patients with impulse control problems one might consider a behaviour modification program as the treatment modality. Outside of the Drug Ward (4-S) that has a strong behavioural emphasis, there are no other Clinical Institute programs explicitly designed for impulse control problems. Note, the group contingency method utilized on the Drug Ward could be extended to the outpatient setting.

Based upon a review of the treatment literature, one may hypothesize interventions to deal with each of the six problem areas. Listed below are suggested interventions for each BPI type. However, it must be stressed that this list is *tentative*, and will need further revision by individuals who have expertise in the various treatment modalities -

	Problem Area	**Potential Intervention**
I.	Withdrawn Depression	1. Activity Groups 2. Social Skills Workshop 3. Individual Therapy
II.	Denial	1. Primary Care 2. Individual Therapy (Insight) 3. Group Therapy (Confrontation)
III.	Impulsivity-Extroversion	1. Behaviour Modification
IV.	Introversion-Denial	1. Contingency Contracting 2. Assertion Training 3. Individual Therapy

Problem Area	Potential Intervention
V. Interpersonal Problems	1. Social Skills Workshop 2. Group Therapy
VI. Suspiciousness-Depression	1. Activity Groups 2. Primary Care

Again, one must be clear that this list is only tentative and is not meant to be exhaustive. However, several areas into which the Shell should consider for expansion include modules for Activity Groups, Behaviour Modification, and Social Skills.

Several miscellaneous points are relevant for program planning. Of the 99 patients assessed during Phase II, 63% stated that alcohol was the principal substance of abuse, 20% reported drug abuse, while 17% stated both. During the assignment meetings, the use of Antabuse was frequently discussed and this form of treatment was explicitly recommended for 7 patients. Some patients needed supervision which was provided by the Primary Care Worker. However, one should consider the advantages of dispensing Antabuse from a Chemical Support module. This module could also supervise patients receiving methadone support and/or other forms of chemotherapy. Also, participation in Alcoholics Anonymous was recommended to 4 patients. Since several patients expressed an interest in AA, one could explore the merits of establishing more direct links with this organization. Finally, in a number of cases there was a need for the kind of community follow-up services (leisure counselling, home visits, vocational services) that may be provided through Home Care. In this respect, Home Care may serve as an adjunct to Primary Care for selected patients.

Hypothetical Programs

In addition to focusing upon problem areas that frequently occur among patients, a second approach for estimating program needs is to pick a specific

treatment modality and determine how may patients would be potential candidates. In this respect, three hypothetical Shell modules were examined during Phase II, including: (1) Naltrexone, (2) Women's Group and (3) Controlled Drinking.

Naltrexone

Naltrexone is a non-narcotic drug that blocks the effects of narcotics (e.g., Heroin) and consequently prevents physical dependence from occurring. This program is proposed to serve the treatment needs of that segment of the narcotic abusing population who wish to remain narcotic-free. Thus, naltrexone may be used as an alternative to methadone maintenance for individuals who are abusing narcotics but are not currently dependent, or perhaps are only minimally dependent. Also, neophyte users of narcotics have been suggested as good candidates for naltrexone. Finally, naltrexone is appropriate as a transitional support. The period immediately after narcotic detoxification appears to be a particularly vulnerable period with a high recidivism rate. Thus, naltrexone has been suggested as a transitional support during this difficult period.

Only 11 narcotic-using patients (11.1%) were assessed during Phase II. Because of this small sample it is not possible to draw definitive conclusions. However, the following data do suggest a potential need for a naltrexone program. Table 4 presents the 9 treatment goal statements that relate to the 3 programs for narcotic users. From examining the ratings of these treatment goals, it is clear that a large majority of patients (80-90%) feel that methadone will be useful to them. That is, methadone will give them time to work on their problems by providing pharmacological support. However, goal statement number 4 underscores the preference for progressive withdrawal rather than long term maintenance. Finding "an alternative life-style besides using narcotics daily" is very important to most patients.

The first two goal statements for the Naltrexone Program indicate that at least 2/3 of respondents feel that they need some non-narcotic (i.e., naltrexone) support to help them keep from using narcotics. The last statement is directed at

patients who have stopped narcotic use. Since the Phase II patients were all currently using narcotics, this statement does not apply. Hence, this goal is inappropriate for these 11 patients.

In review, the data from this small sample suggest that many patients are oriented toward methadone withdrawal vis-a-vis maintenance, and that naltrexone should be considered as a post-methadone support mechanism for these clients. During discussions with these 11 patients, several expressed an active interest in using naltrexone as the final step in their progression toward a drug free state. Thus, further exploration of the use of naltrexone is recommended. One suggestion is to approach patients who are presently on the methadone withdrawal program in the Narcotic Dependence Program to determine their interest and need.

Women's Group

A sex-role orientation (SRO) questionnaire (5) was included in the Assessment Battery to provide a measure of normative conceptions of appropriate male and female behaviour. Sex-role orientation is conceptualized as a continum ranging from traditional to non-traditional, where low scores on the SRO scale denote a traditional viewpoint. The SRO scale taps attitudes toward: sex-based division of labour in marriage, sex-based power structure, employment of women and men, political status of women, sex-role socialization of children, and existing sterotypes of sex-role behaviours. If sufficient female patients appear to be experiencing sex-role difficulties and if these difficulties seem to underlie or motivate substance abuse, then a Womens' Group module may be a desirable intervention to include in the Shell.

Based on several female samples, the mean score on the SRO scale is approximately 166. Of the 25 female patients who completed the SRO scale during Phase II, 10 patients or 40.0% had scores in the traditional range (below 166). One could also argue that females who score extremely high on the SRO scale may run into problems because of their strong nontraditional or liberal views. For example, 16.6% of the female patients scored above 190 (one standard deviation above the

mean). With respect to the Treatment Goals, a statement for the Womens' Group appeared among the female patients' top five choices 20.0% of the time. As pointed out earlier, this may be a low estimate of popularity since patients knew that the Womens' Group intervention was only hypothetical. Thus, it would appear that there are a reasonable number of female patients who score at the extreme poles on sex-role orientation. Further research should explore (1) whether sex-role conflicts are perceived as an important motivation for alcohol or drug abuse, and (2) whether these female patients would be interested in group discussions of sex-role behaviours as a primary treatment intervention.

Incidentally, it is interesting to note that 71.2% of the male patients scored within the traditional range on the SRO scale (e.g., below 160). Perhaps one should consider developing a Sex-Role Orientation Group that would include both female and male patients. One would first have to establish what portion of male patients would be interested in such a group.

One further aspect of the issue of sex role in relation to treatment planning is worth noting. A multiple discriminant analysis was performed to identify characteristics which significantly discriminated male and female patients presenting for assessment during Phase II. The results were very similar to a comparable analysis performed on Phase I data. A significant discriminant function based on demographic and recent life history factors was able to correctly classify 86% of patients as to their sex. Females were much more likely than males to be better educated, younger, have fewer arrests for public intoxication, have a lower legal income, and to have more stable living arrangements typically with family members. Males, on the other hand, were older, more poorly education, with higher incomes, more arrests, less stable living arrangements, and little remaining contact with their families. These differences between male and female populations presenting at the C.I. should be kept in mind in planning treatment programs.

Controlled Drinking

The Controlled Drinking program is designed for non-deteriorated, socially stable problem drinkers who do not have a long history of involvement with Alcoholics Anonymous or other treatment programs. Ten selection criteria were developed by Dr. H. Annis and Dr. M. Sanchez-Craig. These criteria were included as items in the Intake Questionnaire. In a sense, the ten items form a Controlled Drinking Scale, with the hypothesis that high-scoring patients will be the best prospects for this treatment.

The Treatment Goals ratings suggest that there is interest in a controlled drinking program. Within the patients' top five choices, a Controlled Drinking goal was in evidence 29% of the time. The one item "I want to learn how to control my drinking" ranked as the seventh most frequent choice. Of course, not all patients expressing an interest in this program would satisfy the selection criteria.

The ten controlled drinking items and their endorsement frequencies are given Table 5. These response frequencies are based on 62 Phase II patients who reported an *alcohol only* problem. The patient was given a score of 1 each time that he responded:

a) No on items 1,2,4, and 5;

b) Yes on items 3 and 6;

c) Within the range specified on items 7 through 10.

Thus, the scores could range from 0 to 10, where a high score indicated the extent to which the patient met the inclusion criteria.

Item 4 was tthe most stringent criterion since it excluded 83% of patients who considered themselves to be "an alcoholic". Because of the various definitions and connotations associated with the term "alcoholic", one should consider either revising or deleting this item. The remaining 9 items excluded anywhere from 7% (item 8) to 65% (item 2) of patients. In this respect, items 8, 9, 10 may be too lenient as criteria since they would exclude only 7-15% of the patients.

The actual distribution of scores on this Controlled Drinking scale ranged from 2 through 10, with a mean score of 6.1 (standard deviation = 1.9), i.e.,

Score	Percentage
2	3.3
3	5.0
4	10.0
5	23.3
6	20.0
7	15.0
8	8.3
9	11.7
10	3.3

That is , 2 patients or 3.3% met all ten criteria. If one criterion was relaxed (e.g., item 4), then 15.0% of the patients would be eligible, while 23.3% of clients would meet 8 of the 10 criteria. This distribution suggests that a sufficient pool of candidates exists. Whether or not these patients would pick a Controlled Drinking Program as their primary treatment needs to be established.

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TABLE 1

Treatment Goals Summary

	Treatment Program	Choice in Percentage 1st	2nd	3rd	4th	5th	Overall Average
1.	Methadone Maintenance	7.1	2.0	3.0	.0	.0	2.4
2.	Methadone Withdrawal	2.0	3.0	5.0	1.0	3.3	2.9
3.	Assertion	2.0	2.0	1.0	3.1	11.0	3.8
4.	Relaxation	8.1	9.1	18.2	15.6	12.1	12.6
5.	Vocational Rehabilitation	7.1	7.0	3.0	9.4	8.8	7.6
6.	Job Search	2.0	3.0	5.0	5.2	4.4	3.9
7.	Family Therapy	1.0	2.0	1.0	4.1	2.2	2.1
8.	Marital Therapy	2.0	1.0	6.0	6.3	3.3	3.7
9.	Group Therapy	.0	5.0	11.0	5.2	6.6	5.6
10.	Individual Therapy	20.2	12.1	14.1	15.7	11.0	14.6
11.	Primary Care	10.1	14.1	10.0	11.5	8.8	10.9
12.	Drug Ward (4-S)	10.1	6.1	4.0	.0	1.1	4.3
13.	Alcohol Ward (4-W)	20.2	18.2	11.1	6.2	7.7	12.7
14.	Living Skills	.0	.0	1.0	1.0	4.4	1.3
15.	Health and Fitness	.0	3.0	1.0	2.0	3.3	1.9
16.	142 Spadina	2.0	1.0	2.0	2.0	2.2	1.8
17.	Bon Accord	.0	3.0	.0	1.0	1.1	1.0
18.	Women's Group *	.0	4.0	4.0	8.0	4.0	4.0
19.	Controlled Drinking	6.1	6.1	5.0	6.2	5.5	5.8
20.	Naltrexone	.0	.0	1.0	2.0	2.2	1.0

* Note, the percentages for Women's Group are based on the female sample (N=25) only.

TABLE 2

Treatment Assignment Summary

Treatment Program	% Patients Interested	Patients Assigned	% Patients Assigned
1. Methadone Maintenance	12.0	5	5.1
2. Methadone Withdrawal	14.5	3	3.1
3. Assertion	19.1	2	2.0
4. Relaxation	63.0	19	19.4
5. Vocational Rehabilitation	38.0	9	9.2
6. Job Search *	19.5	0	.0
7. Family Therapy	10.3	2	2.0
8. Marital Therapy	18.6	4	4.1
9. Group Therapy	27.8	1	1.0
10. Individual Therapy	73.1	16	16.3
11. Primary Care	54.5	22	22.4
12. Drug Ward (4-S)	21.3	9	9.2
13. Alcohol Ward (4-W)	63.5	16	16.3
14. Living Skills	6.4	3	3.1
15. Health and Fitness	9.3	1	1.0
16. 142 Spadina	9.2	1	1.0
17. Bon Accord	5.1	0	.0
Recommended			
Antabuse		7	7.1
Alcoholics Anonymous		4	4.1

Note: Of the 98 patients assigned to treatment, 14 or 14.3% received a dual intervention placement in addition to ongoing Primary Care.

* Because of staff shortages, Job Search was not operational during Phase II.

TABLE 3

Frequent Treatment Goals

Rank	Frequency	Statement
1	36	I want to be tense less often. (Relaxation)
2	27	I would like to have someone available to discuss my problems and questions. (Primary Care)
2	27	I want a therapist to help me sort out my problems. (Individual Therapy)
3	26	I want a therapist to help me understand why I drink or take drugs. (Individual Therapy)
4	24	I need a structured program to help me stop drinking. (Acohol Ward)
5	21	I want help in finding a career that will be more satisfying. (Vocational Rehabilitation)
5	21	I want to change my usual environment to a structured program and work on my drinking. (Alcohol Ward)
6	20	I just want to talk to someone once in a while who will know my situation. (Primary Care)
7	19	I want to learn how to control my drinking. (Controlled Drinking)
8	18	I want to talk to a therapist about my doubts and fears. (Individual Therapy)
9	17	I want an in-patient setting where I can talk to others with drinking problems. (Alcohol Ward)
10	16	I want to learn to feel at ease with other people. (Group Therapy)
10	16	I want to learn how to relax in social situations. (Relaxation Training)

TABLE 4

Narcotic Dependence Goal Statements

Program Goal Statements	Patient Ratings				Summary	
	Not Important	Somewhat Important	Important	Very Important	Not	Some Importance
I. Methadone Maintenance						
1. I want to stop my illegal use of narcotics	1	0	1	9	9%	91%
2. I want to go on methadone because it will give me time to work on my problems	1	1	1	8	9%	91%
3. I need long term methadone support.	2	2	2	5	18%	82%
II. Methadone Withdrawal						
1. I want to be free of narcotics within 6 months	1	3	1	6	9%	91%
2. I want to find an alterative lifestyle besides using narcotics daily.	1	1	1	7	10%	90%
3. I want a program where I can gradually decrease my dependence on narcotics.	3	3	3	2	27%	73%
III. Naltrexone						
1. I need some supportive (non-narcotic) help to keep me from using narcotics.	4	2	2	3	36%	64%
2. I want to hold a job and avoid all narcotic use.	3	2	1	5	27%	72%
3. Now that I've stopped using narcotics I want to stay drug-free.	7	2	0	2	64%	36%

Note: The "Some Importance" category summarizes the 3 columns (Somewhat, Important, Very).

TABLE 5

Controlled Drinking Items (N=62 Patients)

1. Have you ever attended A.A. meetings on a regular basis? Yes = 48%. No = 52%.

2. Do you agree with the A.A. philosophy that abstinence is the only road to improvement? Yes = 65%. No = 35%.

3. Do you think that cutting down on your drinking to a few drinks a day might be possible? Yes = 37%. No = 63%.

4. Considering the way you drink, do you think that you are an alcoholic? Yes = 83%. No = 17%.

5. Do you think that you have a special body chemistry that triggers a "loss of control" when you begin drinking? Yes = 55%. No = 45%.

6. Do you feel that your drinking is causing serious problems:

   At work in your job?
   At home with your family?
   In your relationship with a special friend?
   (At least one) Yes = 83%. No = 17%.

7. During the past 2 years, what is the longest period that you have remained abstinent on your own (e.g., not in jail or residential treatment)?

   3 months or less = 72%.

8. During the past 5 years, how many times have you entered *out-patient* treatment for an alcohol problem?

   2 times or less = 93%.

9. During the past 5 years, how many times have you been admitted to *residential* treatment for an alcohol problem?

   2 times or less = 85%.

10. During the past 5 years, how many months *in total* have you spent in residential treatment for an alcohol problem?

    3 months or less = 90%.

FIGURE 1 Phase II Patient Assignment Model

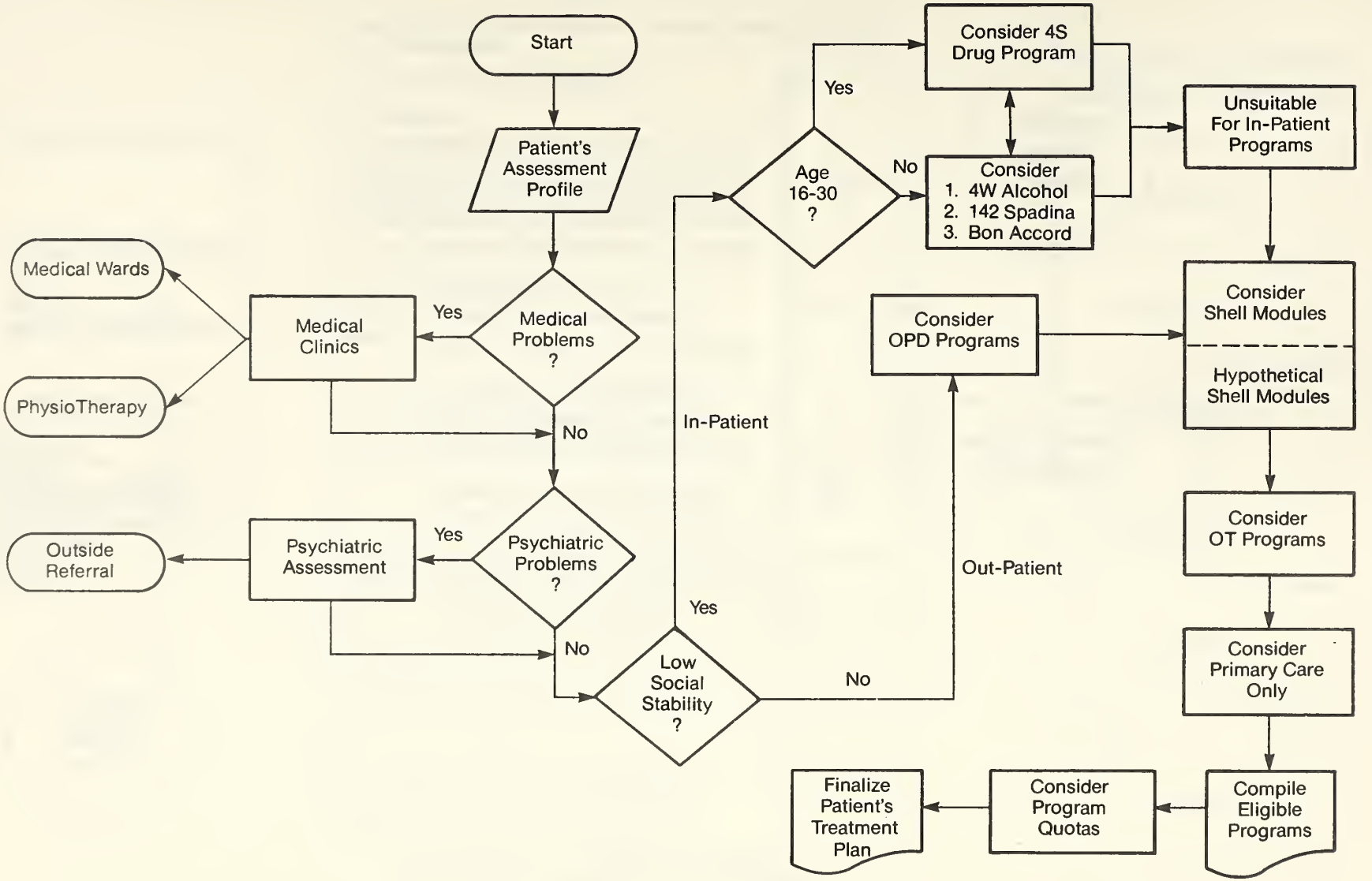


FIGURE 2 Decision Schema for the OPD Marital Therapy Program

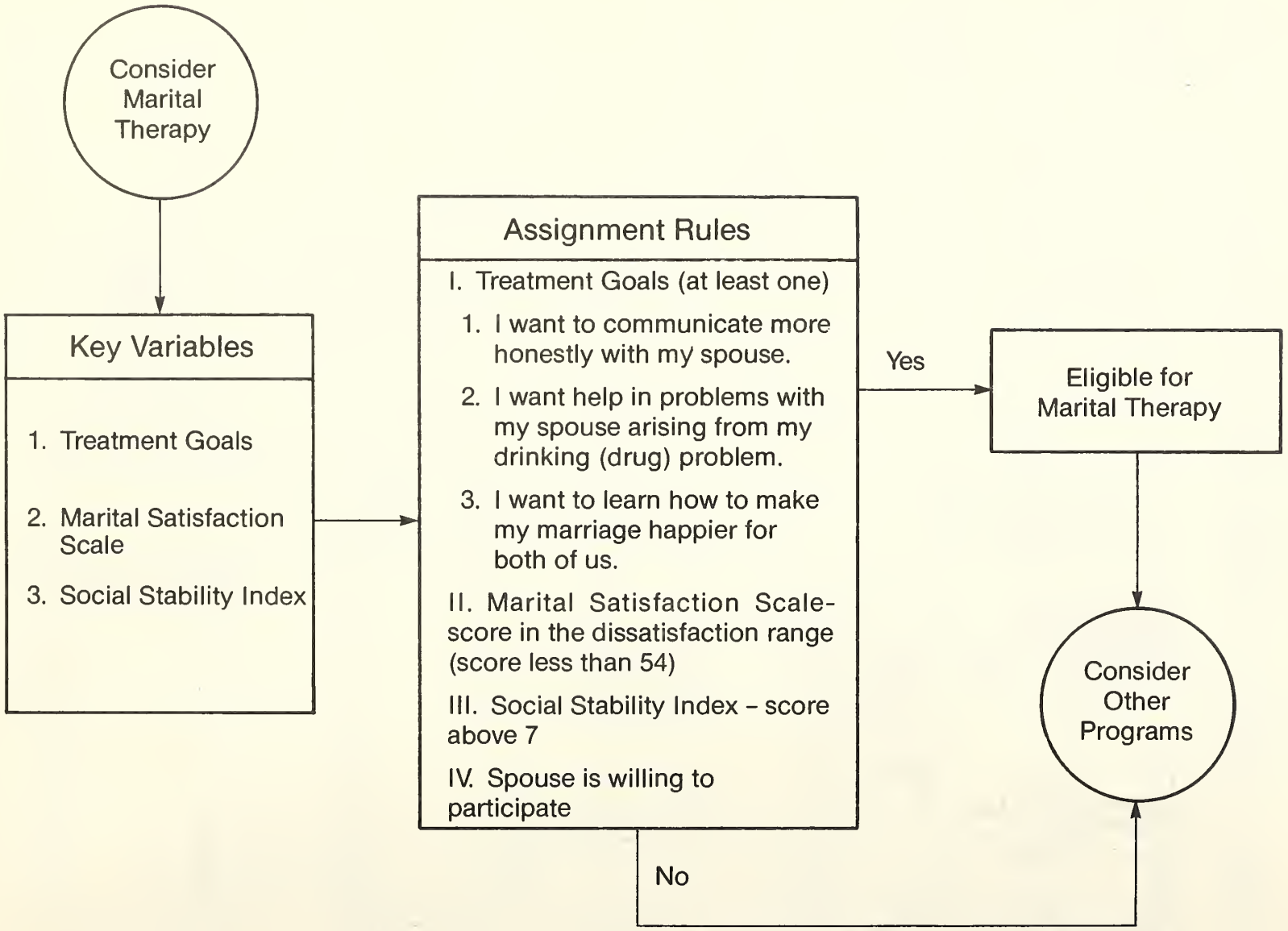

Consider Marital Therapy
Key Variables
1. Treatment Goals
2. Marital Satisfaction Scale
3. Social Stability Index
Assignment Rules
I. Treatment Goals (at least one)
1. I want to communicate more honestly with my spouse.
2. I want help in problems with my spouse arising from my drinking (drug) problem.
3. I want to learn how to make my marriage happier for both of us.
II. Marital Satisfaction Scale- score in the dissatisfaction range (score less than 54)
III. Social Stability Index – score above 7
IV. Spouse is willing to participate
Yes
Eligible for Marital Therapy
Consider Other Programs
No

FIGURE 3 A Prototype Model for Assigning Patients to Interventions

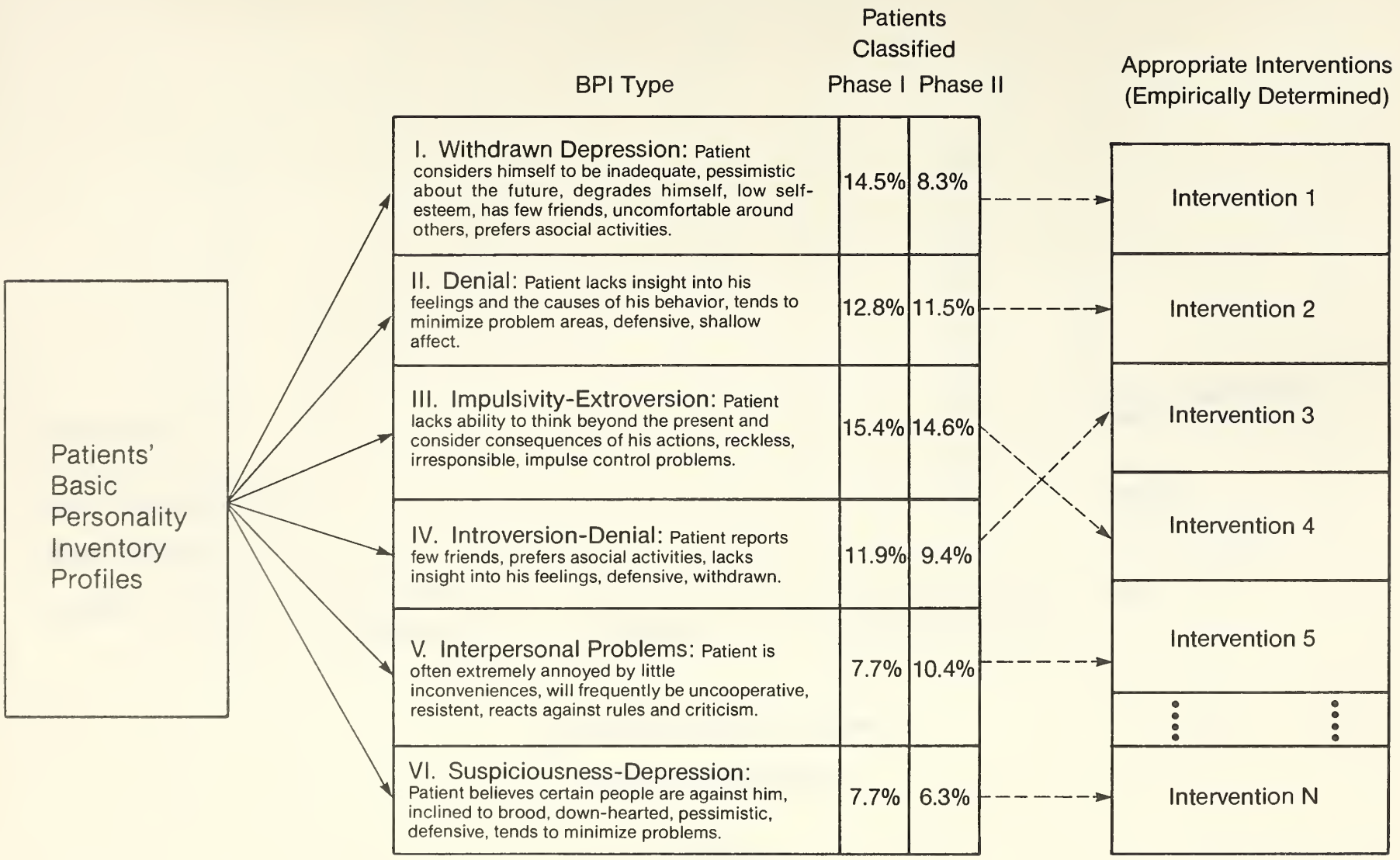
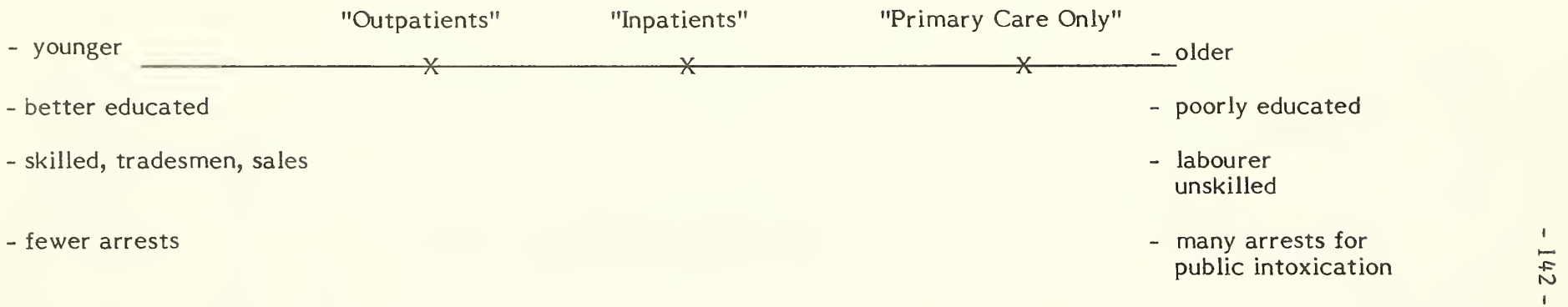

Patients' Basic Personality Inventory Profiles
BPI Type
Patients Classified
Phase I
Phase II
Appropriate Interventions (Empirically Determined)
I. Withdrawn Depression: Patient considers himself to be inadequate, pessimistic about the future, degrades himself, low self-esteem, has few friends, uncomfortable around others, prefers asocial activities.
14.5%
8.3%
II. Denial: Patient lacks insight into his feelings and the causes of his behavior, tends to minimize problem areas, defensive, shallow affect.
12.8%
11.5%
III. Impulsivity-Extroversion: Patient lacks ability to think beyond the present and consider consequences of his actions, reckless, irresponsible, impulse control problems.
15.4%
14.6%
IV. Introversion-Denial: Patient reports few friends, prefers asocial activities, lacks insight into his feelings, defensive, withdrawn.
11.9%
9.4%
V. Interpersonal Problems: Patient is often extremely annoyed by little inconveniences, will frequently be uncooperative, resistent, reacts against rules and criticism.
7.7%
10.4%
VI. Suspiciousness-Depression: Patient believes certain people are against him, inclined to brood, down-hearted, pessimistic, defensive, tends to minimize problems.
7.7%
6.3%
Intervention 1
Intervention 2
Intervention 3
Intervention 4
Intervention 5
Intervention N

FIGURE 4

Discriminant Analysis

Treatment Placement Decision



APPENDIX

Phase II Patient Assignment Criteria

Patient Assignment Criteria

SHELL MODULES

Narcotic Dependence Module

1. Methadone Maintenance

   I. Treatment Goals (at least one).

      1. I want to stop my illegal use of narcotics.

      2. I want to go on methadone because it will give me time to work on my problems.

      3. I need long-term (6 months or more) methadone support.

   II. Social Stability Index (score less than 8).

   III. Narcotic Dependence
      - Judged dependent by the Naloxone challenge test.

   IV. Narcotic Use - long history (over 2 years).

   V. Post Treatment and Withdrawal Attempts - many.

2. Methadone Withdrawal

   I. Treatment Goals (at least one).

      1. I want to become free of narcotics within 6 months.

      2. I want to find an alternative life-style besides using narcotics daily.

      3. I want a program where I can gradually decrease my dependence on narcotics.

   II. Social Stability Index (score above 7).

   III. Narcotic Dependence.

      - Judged dependent by the Naloxone challenge test.

   IV. Narcotic Use - short history (under 2 years).

   V. Past Treatment and Withdrawal Attempts - (few).

3. Assertion Training Module

I. Treatment Goals (at least one).

1. I want to learn how to speak up for my rights.
2. I want to become more resistant to the influences of others.
3. I want to improve my ability to start conversations.

II. Rathus Assertiveness Schedule.

- raw score less than 90 (unassertive range)

III. Affective-Behavioural Measures (at least one).

1. BPI Social Introversion - score above 7.
2. BPI Self Depreciation - score above 6.
3. PRF Succorance - score above 6.
4. PRF Abasement - score above 8.

4. Relaxation Training Module

I. Treatment Goals (at least one).

1. I want to be tense less often.
2. I want to be able to sleep without pills.
3. I want to learn how to relax in social situations.

II. Affective-Behavioural Measures (at least one).

1. BPI Anxiety scale - score above 10.
2. State Anxiety - score above 58.
3. Social Fear Scale - score above 20.

III. General Ability.

1. Raven's Progressive Matrices - above 25th percentile.
2. Clarke-WAIS Vocabulary - standard score above 80.

5. Vocational Rehabilitation

I. Treatment Goals (at least one).

1. I want to understand why I can't keep a steady job.

2. I want to relearn certain skills (eg. reading) to improve my work record.

3. I want help in finding a career that will be more satisfying.

II. Social Stability Index (score above 7).

III. Presently unemployed.

IV. General Ability.

1. Raven's Progressive Matrices - above 25th percentile.

V. Motivation.

1. PRF Achievement - score above 10.

6. Job Search

I. Treatment Goals (at least one).

1. I want help in finding a better job.

2. I want to learn ways of performing better during job interviews.

3. I want to learn how to organize and follow up.

II. Social Stability Index (score above 7).

III. Presently unemployed.

IV. General Ability.

1. Raven's Progressive Matrices - above 25th percentile.

2. Benton - no evidence of organicity.

V. Motivation.

1. PRF Achievement - score above 10.

7. Naltrexone Program

I. Treatment Goals (at least one).

1. I need some supportive help (eg. non-narcotic drug) to keep from using narcotics.

2. I want to hold a job and avoid all narcotic use.

3. Now that I've stopped using narcotics, I want to stay drug free.

II. Social Stability Index (score above 7).

III. Narcotic Dependence.

Judged not dependent using the Naloxone challenge test.

8. Controlled Drinking Program

I. Treatment Goals (at least one).

1. I want to learn how to control my drinking.

2. I would like to go to a social function and have only 1 or 2 drinks.

3. I want to cut my drinking down to a normal level.

II. Social Stability Index (score above 7).

III. Controlled Drinking Scale.

1. Have you ever attended A.A. meetings on a regular basis? (No)

2. Do you agree with the A.A. philosophy that abstinence is the only road to improvement? (No)

3. Do you think that cutting down on your drinking to a few drinks a day might be possible? (Yes)

4. Considering the way you drink, do you feel that you are an alcoholic? (No)

5. Do you think that you have a special body chemistry that triggers a loss of control when you begin drinking? (No)

6. Do you feel that drinking is causing serious problems:

At work in you job?	
At home with your family?	at least one
In your relationship with a special friend?	Yes

7. During the past 2 years, what is the longest period that you have remained abstinent on your own (i.e. not in jail or residential treatment)?
(score 1 if less than 6 months)

8. During the past 5 years, how many times have you entered out-patient treatment for an alcohol problem?
(score 1 if less than 3 admissions)

9. During the past 5 years, how many times have you been admitted to residential treatment for an alcohol problem?
(score 1 if less than 3 admissions)

10. During the past 5 years, how many months in total have you spent in residential treatment for an alcohol problem?
(score 1 if less than 6 months).

9. Woman's Group

I. Treatment Goals (at least one).

1. I want to understand myself better as a woman.

2. I want to explore alternative roles for a woman in our society.

3. I want to discuss ideas about appropriate behaviour for males and females.

II. Sex Role Orientation (score below 160).

III. Female.

IV. Social Stability Index (score above 7).

OUT-PATIENTS DEPARTMENT

10. Family Therapy

I. Treatment Goals (at least one).

1. I want to argue less frequently with my family.

2. I want to learn more about being a good parent.

3. I want counselling with my family to help them cope with my drinking (or drugs).

II. Family conflict Scale - raw score above 5.

III. Social Stability Index - score above 7.

11. Marital Therapy

I. Treatment Goals (at least one).

1. I want to communicate more honestly with my spouse.

2. I want help in problems with my spouse arising from my drinking (drug) problem.

3. I want to learn how to make my marriage happier for both of us.

II. Marital Satisfaction Scale (at least one).

1. Spouse's Behaviour - score less than 27.

2. Own Behaviour - score less than 27.

III. Social Stability Index - score above 7.

12. Group Therapy

I. Treatment Goals (at least one).

1. I need to learn better ways of talking with others.

2. I want to learn to feel at ease with other people.

3. I want to learn how others deal with their problems.

II. Intellectual Ability.

Ravens Progressive Matrices - above 25th percentile.

III. Social Stability Index - score above 7.

13. Individual Therapy

I. Treatment Goals (at least one).

1. I want a therapist to help me understand why I drink or take drugs.

2. I want to talk to a therapist about my doubts and fears.

3. I want a therapist to help me sort out my problems.

II. Intellectual Ability.

Ravens Progressive Matrices - above 25th percentile.

III. Social Stability Index - score above 7.

PRIMARY CARE

14. Primary Care

I. Treatment Goals (at least one).

1. I just want to talk to someone once in a while who will know my situation.

2. I would like to have someone available to discuss my problems and questions.

3. I want someone to help me deal with practical details, like finding a room.

IN-PATIENTS PROGRAMS

15. 4-S Residential Drug Program

I. Treatment Goals (at least one).

1. I want a structured residential program to help me break away from taking drugs.

2. I want to talk with people my age in a residential program to stop taking drugs.

3. I want to work on my ability to get along with others in a residential program.

II. Social Stability Index - score less than 8.

III. Affective-Behavioural Problems (at least one).

1. Family Conflict Scale - score above 5.

2. BPI Interpersonal Problems - score above 11.

3. BPI Social Introversion - score above 7.

IV. Age - normally between 16-30 years.

V. Able to function free of psychotropic medications.

VI. General Ability.

1. WRAT Reading - standard score above 80.

2. Raven's Progressive Matrices - score above 25th percentile.

VII. Pre-requisites.

1. Medically fit.

2. No functional psychotic problems.

16. 4-W Residential Alcohol Program

I. Treatment Goals (at least one).

1. I need a structured program to help me stop drinking.

2. I want an in-patient setting where I can talk to others with drinking problems.

3. I want to change my environment to a structured program and work on my drinking.

II. Social Stability Index (score below 8).

III. Affective-Behavioural Problems (at least one).

1. BPI Interpersonal Problems - score above 10.
2. BPI Depression - score above 9.
3. BPI Social Introversion - score above 7.
4. BPI Denial - score above 5.

IV. Pre-requisites

1. No complicating medical problems.
2. No major psychiatric disturbances.
3. No legal charges pending.
4. Unable to maintain sobriety on an out-patient basis.
5. A minimum of 6 months since the patient was last on 4-W or a similar treatment program.

OCCUPATIONAL AND PHYSICAL TRAINING

17. Living Skills (Budgeting and/or Nutrition)

I. Treatment Goals (at least one).

1. I want to learn how to manage my financial affairs.
2. I want to find out where my money goes.
3. I want to learn how to plan better meals.

II. Social Stability Index (score above 7).

18. Health and Fitness Training

I. Treatment Goals (at least one).

1. I want to know my physical fitness level.
2. I want to learn what physical activities I could be good at.
3. I want to learn exercises to improve my physical fitness.

II. Social Stability Index (score above 7).

PILOT PROJECTS

19. Spadina Project

I. Treatment Goals (at least one).

1. I want to learn more about living in a half-way house.

2. I want to get a job yet live in a half-way house with others.

3. I want to live in a half-way house where I can talk with others about problems.

II. Social Stability Index (score below 8)

III. Unemployed at present but employable.

IV. Pre-requisites.

1. No major health problems.

2. No severe psychiatric disturbances.

3. Willing to stay at least 3 months in the program.

20. Bon Accord Farm

I. Treatment Goals (at least one).

1. I just want a chance to get away from my usual friends and cut down drinking.

2. I want a place to stay where I can work at a job, such as restoring furniture.

3. I want a place to 'dry out' where there will be few pressures on me.

II. Social Stability Index (score less than 4).

III. Long Term Alcohol Abuse.

1. MAST (score greater than 20).

2. Beverages consumed (at least one).
   Beer - Daily
   Wine - Daily
   Rubbing alcohol, etc. - Daily

IV. Pre-requisites.

1. No major health problems.

2. No severe psychiatric disturbances.

3. Willing to spend 14 weeks in the program.

4. Male under 60 years.

Chapter Seven

A FURTHER CONSIDERATION OF SHELL PROGRAMME NEEDS

by Harvey A. Skinner

This chapter has three related aims. First, empirical data from Phase II are summarized with respect to the number of patients interested in and eligible for each Shell program. Then, the current number of openings per month for each program is reviewed vis-a-vis the number of eligible patients. Thirdly, based on prominent treatment needs among Phase II patients, several recommendations are made for future development of the Shell.

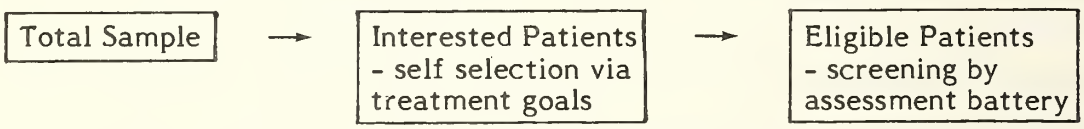
Patients Interested In and Eligible for Programs

As discussed in the Phase II Report, a set of treatment goal statements was developed for each program in the Clinical Institute. Patients were asked to rate the importance of each statment. These ratings provide an index of patient-identified requests for help. In consultation with their Assessment Worker, each patient was asked to pick out his top five choices. For each choice, the Assessment Worker attempted to make sure that the patient clearly understood the treatment implications.

Table 1 presents the treatment assignment summary for Phase II. The % *Patients Interested* column describes the percentage of patients who selected in their first five choices a treatment goal statement for each particular program. The two most popular programs were (1) Individual Therapy (48.5%) and (2) Relaxation Training (47.5%), followed by (3) Primary Care (35.3%), (4) Alcohol Ward (30.3%), and (5) Vocational Rehabilitation (29.3%). These data provide an estimate of the

proportion of the intake patient stream that are likely candidates for each program. An underlying assumption is that it would be unwise to place a patient in a program in which he did not express a distinct interest.

Of the patients who are interested in a given program, not all will meet the entrance criteria summarized in Table 2. To be eligible for a program the patient must have (1) picked a treatment goal for that program among his top five, as well as (2) scored within a specified range on relevant measures in the battery. Thus, the identification of suitable patients for a program entails a two-step process: self selection via the treatment goals (Interested Patients), and screening by means of the assessment battery (Eligible Patients), e.g.,


Total Sample
Interested Patients - self selection via treatment goals
Eligible Patients - screening by assessment battery

It is important to note that the present criteria provide only a minimal level of screening, and were developed on a rational basis in consultation with personnel in the various programs. Once the requisite validation studies have been conducted (in which assessment variables are related to treatment outcome measures), an empirical - statistical basis may be established for the assignment criteria.

The percentage of patients eligible for each program is given in Table 1. Even with the current gross level of screening many "interested" patients are not "eligible" for certain programs. For example, of the 48 patients (48.5%) during Phase II who expressed an interest in Individual Therapy, only 24 individuals (24.2%) met the criteria of: (a) at least moderate social stability (Social Stability Index 6 or above), and (b) at least low average ability in verbal reasoning (Clarke-WAIS 8 or above) and (c) abstract reasoning (Ravens 40 or above). Excluding Primary Care, which may be offered to all patients, a similar reduction from interested to eligible patients is evident for the other programs. The top ranked programs which patients are both interested in and eligible for include:

1. Primary Care (35.3%)
2. Relaxation Training (31.3%)
3. Individual Therapy (24.2%)
4. Vocational Rehabilitation (14.1%)
5. Job Search (14.1%)
6. Alcohol Ward (12.1%).

For comparison, Table 1 lists the percentage of Phase II patients assigned to each program. Observe that not all eligible patients were actually assigned to the program. This is because of restrictions imposed on the number of programs a patient may enter simultaneously, as well as differential waiting periods for an opening in particular programs. These points are discussed more fully in the previous chapter.

Significant practical implications flow from these data. it should be recalled that a basic rationale underlying the structural separation of core functions from shell functions in the original system design was to protect the shell programmes from undue utilization. The data suggest that this has in fact occurred. That is, the introduction of minimal screening criteria, objective in nature and uniformly applied, has markedly reduced the pool of eligibles for such interventions as individual psychotherapy and the inpatient alcoholism unit. It is a reasonable expectation that, as data from follow-up studies accrue and the precise characteristics of those clients who benefit from various interventions become known, more stringent criteria will be introduced and the pool of eligibles will be further reduced. Since such interventions as individual psychotherapy and inpatient treatment of any kind are among the most costly endeavours mounted by the Clinical Institute, the cost-effectiveness implications of shielding them in this manner are considerable. Conversely, it may be noted that the introduction of assignment criteria resulted in the largest pool of interested eligibles for primary care, which is probably the most cost-effective way of delivering service to clients. In sum, the data suggest that the theoretical implications of cost-effectiveness intrinsic to the design of the Core-Shell system are being borne out in practice.

Number of Programs Per Patient

An important issue for the development of the Shell centers around the number of interventions a patient will be allowed, either simultaneously or in sequence. Pursuant to this question, it is instructive to examine the number of programs that patients were eligible for in addition to Primary Care. This distribution is listed in Table 3. Excluding Primary Care, almost 30% of the patients were not eligible for any programs they had expressed an interest in. Thus, ongoing primary care support would be the only option for these individuals. Almost three-quarters of the patients (72.7%) were eligible for up to two interventions. Only one patient was eligible for the upper limit of five distinct programs. These data suggest that with the *current* range of programs, most patients could be accommodated by a ceiling of two interventions augmented by Primary Care support.

However, several cautions must be noted. First, some of the current programs such as the Alcohol Ward (4-W) are indeed treatment packages that offer a range of interventions (e.g., group counselling, relaxation training, vocational rehabilitation). Because of the scope of the 4-W program, such patients are unlikely to require any supplemental interventions. When selecting their top five treatment goals the patients were informed of the comprehensiveness of the two inpatient wards. These global programs may be contrasted with the future conceptualization of the Shell in which each intervention only deals with a circumscribed problem area. Also, the data in Table 3 reflect gross screening criteria. Certainly, the number of programs for which a patient is eligible will drop as more stringent assignment rules are implemented.

These data illuminate the considerable discussion which has surrounded the general practice of restricting to a minimum number the interventions provided to a given client. Two was the maximum number of interventions permitted during Phase II, and only 27.6% of clients, given *minimal* criteria, were eligible for more than two programmes. The important recent study by Griffith Edwards and his colleagues suggests that minimal intervention may be as effective as definitive intervention. Very little is known about the interations between various interventions, but it can

reasonably be assumed that, while some may be additive or facilitatory, others may be inhibitory or actively antagonistic. This has certainly proven to be the case with some combinations of drugs in chemotherapy. Finally, there is the practical problem that permitting multiple interventions on a routine basis will not only greatly complicate any attempt to assign efficacy to a particular intervention, but also create serious bottlenecks on account of the limited availability of interventions as a whole which currently obtains. Therefore, a continuing restriction on the number of interventions available to a client would seem prudent from several points of view.

Because of restrictions on the number of interventions a patient may receive simultaneously, the % *Patients Eligible* column of Table 1 may be interpreted as an upper bound estimate of required program space. Consider a situation in which the patient is permitted only *one* intervention. For example, Table 4 presents the percentage of patients who selected a given program as their first choice among the treatment goals. In addition, Table 4 lists the percentage of eligible patients. These data rank-order the major program needs as follows:

1. Individual Therapy (12.1%)
2. Primary Care (10.1%)
3. Relaxation (7.1%)
4. Alcohol Ward (7.1%)
5. Drug Ward (6.1%).

The % *Patients Eligible* column of Table 4 provides a lower bounds estimate of current program requirements, since some doubling up of interventions is permitted (e.g., Methadone Maintenance and Vocational Rehabilitation). Thus, the "real" number of program openings needed to serve the patient flow lies somewhere between the upper bound (Table 1) and lower bound (Table 4) estimates. Under the current assignment rules, however, the central tendency is toward the lower boundary.

For the subset of individuals who met the entrance criteria for a particular program, a number of patient characteristics were computed. The data include demographic variables, social stability, alcohol and drug abuse items, ability measures, etc. A file for each program is available from the Research Module staff. Several points are of relevance for program planning:

1. *Primary Care.* Patients who express an interest in the more pragmatic level of involvement offered by primary care constitute a fairly heterogeneous group. For example, these individuals are equally distributed across the full range of social stability. Considerable variation is present in intellectual functioning as assessed by the Ravens and Clarke-WAIS. Eighty per cent are male, 20% female; and the reason for referral was divided according to: 63% alcohol, 20% drug abuse, 17% both. Thus, these individuals represent a microcosm of the total patient population. Primary Care appears to have a universal appeal to various types of patients.

2. *Married Patients.* Of the 99 patients assessed during Phase II, 22 individuals were either married (21%), or living common law (5%). These 27 patients are potential candidates for marital therapy, although some additional individuals who are currently separated may seek marital counselling. Descriptive data on the 27 patients are given in Table 5. Only 9 individuals (33%) expressed a clear interest in Marital Therapy by selecting a treatment goal for this program among their top five choices.

3. *OPD Individual and Group Therapy.* What if Individual and Group Therapy were available to all eligible patients regardless of their residential status (e.g., inpatient or outpatients)? To give an idea of the number of eligible patients, the social stability criterion (Table 2) was deleted with the result that 33 patients (33.3%) were candidates for Individual Therapy while 14 patients (14.1%) met the entrance criteria for Group Therapy. These data provide an upper bound estimate of patient flow if one were to develop an Individual Therapy module and a Group Therapy module that would serve *all* eligible patients irrespective of residential accommodation.

This last point may profitably be expanded and used to emphasize the interdependence of parts of the treatment system upon each other. Certain types of therapy, such as individual psychotherapy, are characteristically provided on an outpatient basis. Therefore a social stability criterion was utilized as a portion of the indications for this kind of intervention. However, if a residential living facility not related to specific interventions were available, it could be taken advantage of to stabilize the client's social situation so that he could sustain various interventions ordinarily reserved for outpatient use. In that case, the social stability qualification

for those interventions could be dispensed with and, as is illustrated in the above example, an increased number of clients would become eligible for them. While this may be quite desirable, it also requires additional resources, including both the residential living facility itself and an increased capacity for the interventions which would be affected. Perhaps the basic question to be answered is whether the enhancement of results which might occur is sufficient to justify the investment of additional resources.

Projected Openings Required by Each Program

The average number of openings per month available for each program is given in Table 6. No restrictions are imposed in Primary Care and the two NDP Programs, although there is a practical limit on the number of patients these programs could accommodate. Because of staff shortages, Group Therapy, Assertion Training and Job Search are not operational at present. The figures for the remaining programs represent openings available to patients entering through the Core-Shell or regular intake stream. Note that some programs such as Relaxation Training and Vocational Rehabilitation also take referrals from the inpatient wards. The Outpatients Department has 16 new slots per month that are distributed as the need requires across Individual, Family and Marital Therapy.

Attrition data from the Phase II Report indicate that if individuals contacting the Clinical Institute were offered assessment on an outpatient basis, an average of 100 patients per month (25 per week) would complete the Assessment Program. Similarly, if assessment were offered on an inpatient basis, an average of 140 individuals (35 per week) would finish the assessment phase. Using these projections of patient flow as well as the lower bound (Table 4) and upper bound (Table 1) estimates of the percentage of eligible patients, one may compute boundary estimates for the expected number of patients to be eligible for each program (Table 6). Recall that under the current policy of restricting the number of simultaneous interventions, the "actual" number of patients entering a program tends toward the lower bound estimate. For example, with Primary Care the projected range of eligible patients per month is 10-35 via outpatient assessment or

14-49 via inpatient assessment, while during Phase II, 22 of 99 patients were actually assigned to this program.

Although the data in Table 6 must be considered as rough estimates, several programs appear to require additional resoures. For example, the Outpatient Department with 16 openings per month can barely accommodate the lower bound estimate of 15 patients via outpatient assessment, and falls short of the projected 21 patients if all individuals were assessed on an inpatient basis. Furthermore, no space currently exists for Group Therapy. Aside from OPD programs, Relaxation Training with 10 openings per month can just cover the minimum estimates of 7 (outpatient) or 10 (inpatient). As discussed in the previous chapter (Table 1), a considerable number of patients expressed an interest in Relaxation Training as a secondary treatment goal. This effect is demonstrated by the upper bound estimate of 31 (outpatient) or 43 (inpatient) eligible candidates. Although Vocational Rehabilitation can accommodate the lower bound estimates, the Job Search component is clearly deficient. During Phase II patients tended not to pick a treatment goal for Job Search as their first choice since they were informed that this program was not operational. Thus, the lower bound figure of 1 patient must be considered an underestimate. There appears to be sufficient demand to consider reactiviating Job Search.

In contrast to the above programs, both inpatient wards can accommodate the projected number of eligible patients. Indeed, on paper these two programs appear to have excess space. However, experience indicates that both 4-W and 4-S usually have a waiting list. Several explanations may be adduced. First, the data in Table 6 are based on averages, while in the everyday operation of the programs there is variability both in patient supply and demand and in the length of time each patient stays on the program. The ideal state would have waiting lists created during peak periods offset by empty beds during low demand. However, there are practical constraints upon the extent to which one may achieve optimal allocation of bed space. A second reason is that because of the comprehensive range of interventions offered as part of the 4-W or 4-S package, these programs tend to acquire patients who would otherwise receive only one (or two) intervention on an outpatient basis.

Observe that the actual number of patients assigned during Phase II was 16.3% to 4-W and 9.2% to 4-S. These data correspond to the upper bound estimate of eligible patients. A third possibility is that 4-W and 4-S receive some patients who do not fulfill the gross screening criteria of Table 2.

Recommendations

The following recommendations are based upon the present analysis and upon the previous chapter:

1. Examine the current allocation of resources with respect to providing additional patient openings in OPD programs, Relaxation Training and Job Search;

2. Review the current assignment criteria with program staff and make requisite revisions;

3. Determine the feasibility of implementing Shell modules for Activity Groups, Behaviour Modification (e.g. contingency contracting, cognitive mediation) and Social Skills (e.g. assertion training). These interventions are suggested for recurrent patient needs identified by the assessment battery;

4. Consider the advantages of integrating Antabuse and Methadone in a Chemical Support Module;

5. Explore the advantages of closer integration of Alcoholics Anonymous and Home Care Services within the treatment system.

The first two recommendations stem directly from the current analysis. The third recommendation is based upon prevalent need areas among Phase II patients as assessed by the Basic Personality Inventory. Approximately 15% of the patients exhibited impulse control problems that would seem quite appropriate for a behaviour modification program as the treatment modality. Note, the group contingency method utilized on the Drug Ward (4-S) could be extended to the outpatient setting. Similarly, a social skills workshop may be suggested for individuals who experience interpersonal problems (10.4%), while activity groups could be recommended for patients who present with a depression syndome: withdrawn-depression (8.3%) or suspiciousness-depression (6.3%).

During assignment meetings the use of Antabuse is frequently discussed. This form of treatment was expicitly recommended for 7 patients during Phase II. Presently, the Primary Care Workers have to assume a supervisory and support role for these patients. However, one should consider the advantages of dispensing Antabuse from a Chemical Support module, where adequate supervision and after care may be provided.

Participation in Alcoholics Anonymous was recommeded to 4 patients during Phase II. Since several patients have expressed an interest in AA, one could explore the merits of establishing more direct links with this organization. Also, in a number of cases there is a need for the kind of community follow-up services (living skills, home visits, vocational services) that may by provided through Home Care. In this respect, Home Care may serve as an adjunct to Primary Care for selected patients. Thus, the fifth recommendation is to explore the advantages of integrating AA and Home Care services within the treatment system.

TABLE 1

Phase II Treatment Assignment Summary

	Treatment Program	% Patients Interested	% Patients Eligible	%Patients[1] Assigned
1.	Primary Care only	35.3	35.3	22.4
2.	Individual Therapy	48.5	24.2	16.3
3.	Group Therapy	19.2	10.1	1.0
4.	Family Therapy	8.1	6.1	2.0
5.	Marital Therapy	13.1	9.1	4.1
6.	Alcohol Ward 4-W	30.3	12.1	16.3
7.	Drug Ward 4-S	13.1	8.1	9.2
8.	Relaxation	47.5	31.3	19.4
9.	Assertion	16.2	7.1	2.0
10.	Vocation Rehab.	29.3	14.1	9.2
11.	Job Search[2]	15.2	14.1	.0
12.	Living Skills	6.1	5.1	3.1
13.	Health & Fitness	9.1	8.1	1.0
14.	Methadone Maint.	12.1	8.1	5.1
15.	Methadone Withdrawal	12.1	8.1	3.1
16.	142 Spadina	7.1	6.1	1.0
17.	Bon Accord	5.1	2.0	.0
	Hypothetical			
1.	Women's Group[3]	20.0		
2.	Controlled Drinking	21.0		
3.	Naltrexone	4.0		
	Recommended			
1.	Antabuse			7.1
2.	Alcoholics Anon.			4.1

[1] Of the 98 patients assigned to treatment, 14 or 14.3% received a dual intervention plecement in addition to ongoing Primary Care.

[2] Because of staff shortages, Job Search was not operational during Phase II.

[3] The percentages for Women's Group are based on the female sample only (N=25).

TABLE 2

Assignment Criteria for Interested Patients

	Treatment Program	Minimum Criteria
1.	Primary Care Only	no restrictions
2.	Individual Therapy	a) at least moderate social stability (Index GE 6) b) low average verbal reasoning ability (Clarke-WAIS GE 8) c) low average abstract reasoning ability (Ravens GE 40)
3.	Group Therapy	a) at least moderate social stability (Index GE 6) b) low average verbal reasoning ability (Clarke-WAIS GE 8) c) low average abstract reasoning ability (Ravens GE 40)
4.	Family Therapy	a) at least dull normal verbal reasoning ability (Clarke-WAIS GE 8) b) dull normal abstract reasoning ability (Ravens GE 30)
5.	Maritial Therapy	a) at least dull normal verbal reasoning ability (Clarke-WAIS GE 8) b) dull normal abstract reasoning ability (Ravens GE 30)
6.	Alcohol Ward 4-W	a) low or moderate social stability (Index LE 9) b) age of 25 years or older c) at least dull normal verbal reasoning ability (Clarke-WAIS GE 8) d) at least dull normal abstract reasoning ability (Ravens GE 30)
7.	Drug Ward 4-S	a) low or moderate social stability (Index LE 9) b) maximum age of 30 years c) at least dull normal verbal reasoning ability (Clarke-WAIS GE 8) d) at least dull normal abstract reasoning ability (Ravens GE 30)
8.	Relaxation Training	a) elevation on trait anxiety (BPI Anxiety GE 9) or present state anxiety (State GE 59) or social fear (Social Fear GE 28) b) minimum of dull normal verbal ability (Clarke-WAIS GE 8) c) minimum of dull normal abstract reasoning (Ravens GE 30)
9.	Assertion Training	a) average or below on assertiveness (Rathus LE 129) b) at least dull normal verbal ability (Clarke-WAIS GE 8) c) at least dull normal abstract reasoning (Ravens GE 30)
10.	Vocational Rehabilitation	a) average or above achievement motivation (PRF GE 8) b) at least dull normal verbal ability (Clarke-WAIS GE 8) c) at least dull normal abstract reasoning (Ravens GE 30)
11.	Job Search	a) average or above achievement motivation (PRF GE 8) b) at least dull normal verbal ability (Clarke-WAIS GE 8) c) at least dull normal abstract reasoning (Ravens GE 30)
12.	Living Skills	at least moderate social stability (Index GE 6)
13.	Health & Fitness	at least moderate social stability (Index GE 6)
14.	Methadone Maint.	judged physically dependent by the naloxone challenge test
15.	Methadone Withdrawal	judged physically dependent by the naloxone challenge test
16.	142 Spadina	moderate or less social stability (Index LE 9)
17.	Bon Accord	low social stability (Index LE 5)

NOTE GE means greater than or equal to.
LE means less than or equal to.
A detailed discussion of the assignment criteria is given in the previous chapter.

TABLE 3
Number of Programs Patients are Eligible For (Excluding Primary Care)

Number of Programs	Absolute Frequency	Percentage	Cumulative Percentage
None	29	29.3	29.3
One	15	15.2	44.4
Two	28	28.3	72.7
Three	18	18.2	90.9
Four	8	8.1	99.0
Five	1	1.0	100.0

TABLE 4
First Treatment Choice

	Treatment Program	% Patients First Choice	% Patients Eligible
1.	Primary Care Only	10.1	10.1
2.	Individual Therapy	20.2	12.1
3.	Group Therapy	.0	.0
4.	Family Therapy	1.0	1.0
5.	Marital Therapy	2.0	2.0
6.	Alcohol Ward 4-W	20.2	7.1
7.	Drug Ward 4-S	10.1	6.1
8.	Relaxation	8.1	7.1
9.	Assertion	2.0	1.0
10.	Vocational Rehab.	7.1	4.0
11.	Job Search	2.0	1.0
12.	Living Skills	.0	.0
13.	Health & Fitness	.0	.0
14.	Methadone Maint.	7.1	6.1
15.	Methadone Withdrawal	2.0	2.0
16.	142 Spadina	2.0	2.0
17.	Bon Accord	.0	.0
	hypothetical		
1.	Woman's Group	.0	
2.	Controlled Drinking	6.1	
3.	Naltrexone	.0	

TABLE 5

Characteristic of Patients Who Are Married or Living Common Law (N=27)

1. *Sex*:	male	70%	9. *Employed at Present*:	yes	56%
	female	30%		no	44%
2. *Marital Status*: (% of total patients)	married	21%	10. *Reason for Referral*:	alcohol	70%
	common law	6%		drugs	11%
				both	19%
3. *Children*:	none	26%	11. *Legal Status*:	probation	7%
	one	18%		awaiting trial	33%
	2 or more	66%		no problems	59%
4. *Age*:	mean =	36.0	12. *Previous Treatment*: (addiction problem)	yes	30%
	standard deviation =	12.8		no	70%
			13. *Verbal Reasoning Ability*	below average	26%
5. *Education*:	public school	22%		average	59%
	some high school	59%		above average	15%
	completed high school	15%	14. *Abstract Reasoning Ability*	below average	26%
	some university	4%		average	33%
				above average	41%
6. *Employment*:	labourer	33%			
	skilled	22%	15. *Social Stability*	low	4%
	clerical	22%		moderate	59%
	proprietor	7%		high	37%
	professional	4%			
	housewife/student	11%	16. *Interested in Marital Therapy*	yes 9 patients	
				no 18 patients	
7. *Legal Income* (yearly)	mean	$9,077.00			
	standard deviation	$7,976.00			
8. *Months Employed Last Year*	0 months	22%			
	1-6 months	33%			
	7-11 months	11%			
	12 months	33%			

TABLE 6

Projected Openings Required by Each Program

Treatment Program	Current Openings/month	Outpatient Assessment Lower Bound	Outpatient Assessment Upper Bound	Inpatient Assessment Lower Bound	Inpatient Assessment Upper Bound
1. Primary Care	no restrictions	10	35	14	49
2. Ind. Therapy	16	12	24	17	34
3. Family Therapy		1 (15)	6 (39)	1 (21)	8 (55)
4. Marital Therapy		2	9	3	13
5. Group Therapy	not operational	0	10	0	14
6. Alcohol Ward 4-W	26	7	12	10	17
7. Drug Ward 4-S	16	6	8	8	11
8. Relaxation	10	7	31	10	43
9. Assertion	not operational	1	7	1	10
10. Vocational Rehab.	8	4	14	6	20
11. Job Search	not operational	1	14	1	20
12. Living Skills	8	0	5	0	7
13. Health & Fitness	2	0	8	0	11
14. Meth. Maint.	no restrictions	6	8	6	11
15. Meth. Withdrawal	no restrictions	2	8	2	11
16. 142 Spadina	not available	2	6	3	8
17. Bon Accord	not available	0	2	0	3

Note: Outpatient Assessment is estimated at 100 patients per month (25 per week), while Inpatient Assessment is estimated at 140 patients per month (35 per week).

FOLLOW-UP

Chapter Eight

ISSUES IN FOLLOW-UP

by Alan C. Ogbourne

"And they lived happily ever after"
(Anon. and others)

Stories in which all the problems of the characters are clearly resolved at the end have always been popular - especially with children. When the villain is punished, the hero and heroine united and all other characters given their just desserts, the story creates a satisfying illusion of an orderly world in which the fortunes of individuals can be accurately predicted from the position in which they stand at any point in time. In contrast, stories that have many loose ends and in which the future is uncertain are disconcerting and create a demand for a more satisfactory resolution, a phenomenon well known to writers of suspense stories and soap operas. True stories, while sometimes having highly satisfying, fairy tale endings, are more likely to leave the reader full of doubts and uncertainties. In real life all endings, perhaps even death, are also beginnings and fate will continue to limit the predictability of the future.

In real life, therefore, one must wait for the future to become the present in order to evaluate the past. When the past includes some episode of intervention aimed at future behavior change, only a follow-up study can assess the efficacy of that intervention. Follow-up is, therefore, a critical component of any self-correcting system of the kind discussed in these volumes. In this chapter key issues are examined in the design of follow-up studies for the assessment of interventions for substance abusers. The next chapter will describe a follow-up package designed for use in the Clinical Institute.

General Considerations

Follow-up studies of substance abusers involved in treatment programs are primarily intended to contribute to the evaluation of these programs. The extent to which follow-up studies are successful in this regard depends upon the reliability, validity and relevance of the data which they furnish, and the overall research design within which follow-up takes place. In this chapter the main concerns are with the selection and measurement of variables to be considered in follow-up studies and with some of the procedures for conducting these studies. It should, however, be noted that these issues should be considered in the broader context of research design where the selection of subjects for experimental and control conditions would also be addressed (1,2). Factors relevant to the reliability and validity of follow-up data will be considered in detail below. For a moment, however, let us consider how one might go about selecting the kinds of issues that would be addressed in follow-up studies of treatment programs for alcohol and drug abusers.

Selecting outcome criteria

According to Krause (3) the selection of outcome criteria for the evaluation of therapeutic programs is determined by the values of the various interested parties. The role of the evaluator includes the identification of these parties and the articulation of criteria whereby they would judge the merits of the programs in question. If the parties fail to agree or are unable to identify criteria which can be measured, then the evaluator may have to look for criteria elsewhere (e.g. in the literature on similar programs).

Those who might legitimately claim an interest in the outcome of treatment programs for alcohol and drug abusers are (i) persons directly affected (substance abusers and their families), (ii) therapists, (iii) employers, (iv) program sponsors, (v) various moral entrepreneurs, (vi) taxpayers, (vii) proponents of various theories of substance abuse and (viii) evaluators, who may or may not be closely associated with therapists and theorists. Expectations held out for substance abuse programs by these various groups have not been studied directly. However, a wide range of

outcome criteria have been used for treatment evaluation and it is clear from inspection that these would be of varying importance to different parties. Thus, improvement in patient's self-esteem is unlikely to be ranked high in importance by those only concerned with drinking behaviors. Some therapists, on the other hand, may see intrapsychic changes as equal in importance to behavioral change.

While accepting that all-purpose evaluations are somewhat of a myth (4), most professional evaluators of treatment programs for substance abusers seem to agree that multiple outcome criteria should be used (e.g. 5-9). This consensus is, in part, based upon an appreciation of the diversity of expectations for treatment programs, and also is influenced by empirical research which has thrown new light on the nature of substance abuse.

Empirical studies have clearly challenged the previously dominant view that substance abusers are simply afflicted with some "disease-like" condition ("alcoholism" or "drug addiction") with a definable natural history whose presence or absence would be the primary concern of therapists and treatment outcome researchers. Rather it is now apparent that people who have alcohol and drug related difficulties can differ markedly in the extent of their substance use and in the frequency with which they exhibit problematic behaviors of various kinds (8). The role of assessment and treatment evaluation has thus shifted away from one of determining the presence or absence of "addiction" to one of identifying the status of individual substance abusers in a more complex, multiple-syndrome framework, including perhaps, measures of "dependence" (10,11).

What criteria should then be considered for the evaluation of alcohol treatment programs? Obvious candidates are those related specifically to the consumption of alcohol, drugs and closely related difficulties. These have been considered in most, but curiously not in all, treatment evaluations (6,12). However, one can imagine one or more of the parties noted above as additionally having some interest in how treated substance abusers function socially and economically, how they use their leisure time, how healthy they are, whether or not they get into legal difficulties, how they feel and function psychologically, whether or not they seek

additional treatment, and how they feel about the treatments they received. Criteria relating to each of these concerns have been proposed for, or used in the evaluation of, some treatment programs although there has been little uniformity in the selection and measurement of specific criteria in different studies (12,13).

Although simple comparisons of pre- and posttreatment behaviors may give a very biased impression of the effectiveness of treatment (14), pre- and posttreatment measures should nonetheless be closely related. This will permit checks on the validity of any claims of treatment effectiveness based on outcome differences between experimental and control or comparison groups. These differences could be due as much to pretreatment differences as to treatment per se. Covariance analyses using pretreatment measures will allow at least a partial test of this possibility, and these analyses will be optimal when predictor and criterion variables are the same (e.g. days drinking in the year prior to treatment and days drinking in the year following treatment). The need for covariance adjustment could, of course, be avoided if experimental and control subjects were randomly assigned to treatment conditions. Even here, however, it would be useful to have data on subjects' pretreatment status on variables to be examined at follow-up. This could then be used to assign subjects to heterogenous "blocks" and thus facilitate finding patient by treatment interactions (15). For this and for other reasons (see below) outcome studies should, therefore, be carefully planned and discussed at the same time as issues of program design and pretreatment assessments.

The Timing and Frequency of Outcome Assessments

Reports of treatment outcomes in the substance abuse field have been based on assessments made from a few weeks to 5 years following discharge from treatment. Some reports have presented data obtained in a single follow-up interview, while others have given results from multiple client contacts. In some studies, subjects' behaviors at the time of follow-up have been the main concern, while in others, behaviors throughout the entire follow-up period were summarized. Changes in behaviors during the follow-up period have sometimes been documented,

but at other times only the overall incidence of particular behaviors has been presented. Such a diversity of methods for the collection and presentation of data makes it impossible to compare results from different studies (13).

Gerard and Saenger (16) analyzed three studies of problem drinkers which featured multiple outcome assessments and concluded that the stability of outcome results was established within the first few months following treatment and that "the time interval (from treatment to treatment) does not influence the statistical patterning of the patient's outcome status at follow-up". Gerard and Saenger's somewhat arbitrary decision to assess outcomes at one year has served as a guide to many other researchers. Some more extended follow-ups have, however, been reported (e.g. 17).

Annis and Ogborne (18) re-analyzed data from alcoholism studies which featured two or more follow-up assessments and found both group and individual outcomes to be far less stable than might be desired. The stabilities of both group and individual outcomes were clearly influenced by the number of outcome categories employed and the time intervals considered. Moreover, the direction of group and individual changes varied from study to study and there was evidence that different treatments variously affected both types of change. Specifically, outcome results for patients counselled in controlled drinking were less stable from six months to one year than outcomes for those counselled in abstinence (based on data presented by Sobell and Sobell, (19). This was due to an increase over months 7-12 in the incidence of controlled drinking by those counselled in this mode. Those counselled in abstinence were unlikely to evidence controlled drinking once they started drinking. In other words, those counselled in controlled drinking seemed to have benefitted from practice at drinking, while those counselled to abstain showed no practice effects once they started drinking.

These results clearly have important implications for treatment and for outcome research and challenge much of what has previously been concluded about the effectiveness of treatments and the characteristics of those who benefit from different types of treatment. Neither over-all treatment effectiveness nor specific

treatment indications can be inferred from analyses based on unstable outcome results.

Instabilities in drinking behavior are, of course, consistent with a situationalist analysis of problem drinking (20). As circumstances change so will drinking behaviors and these in turn will alter the situation in which the drinkers find themselves. It is clear therefore that treatment outcome studies need to consider posttreatment environmental factors and the ways in which these influence posttreatment functioning (21). The implications for follow-up research are quite profound but at least follow-up should proceed long enough for treated persons to have experienced a representative sample of problematic situations to which their drinking responses can be assessed. Very extended follow-up may be required for this condition to be satisfied.

Retrospective accounts of substance use and other behaviors over lengthy follow-up periods are unlikely to be as reliable as accounts of more recent activities. Frequent follow-up contacts would, therefore, be preferable from the point of view of obtaining good quality data (22,23). Frequent and extended follow-up contacts may, however, have a reactive effect on those involved (18,19,24,25). Specifically, intensive follow-up is likely to have a therapeutic effect.

To date, there have been no empirical assessments of this effect and follow-up has typically been viewed as a simple, non-reactive research data collection procedure. Such studies are clearly indicated if intensive follow-up and other potentially reactive data collection procedures are to become standard practice (use of breathalyzers, skin patches, taking blood samples, self-monitoring).

Locating Patients for Follow-Up Assessments

Failure to contact most or all individuals in a treatment evaluation study for follow-up assessments may seriously limit the utility of the study (26-28). Patients unable to be contacted tend to have a poorer prognosis at intake and those most difficult to locate tend to be doing less well than those found more easily (29). In

planning a follow-up study steps should, therefore, be taken to maximize the chances that discharged patients can be traced and that they will cooperate with follow-up staff. These steps should include:

(i) making patients aware of the importance of follow-up as they arrive for the treatment program.

(ii) obtaining signed consents for follow-up together with details of how to contact patients when they finish treatment. This should include patient's address, telephone number, best times to call, whether or not others living at the address will be aware of the patient's problems and involvements in treatment, and the address and telephone numbers of others who could be approached to establish contacts if target individual should move and the best times to call these people. Permission to contact collaterals should also be obtained at the same time and letters, signed by the patients, sent to collaterals.

(iii) if possible introducing the follow-up worker to patients while patients are involved in treatment and having workers assure patients of their interests in their welfare.

(iv) beginning follow-up contact shortly after the end of treatment and thereafter having follow-up workers contact patients fairly regularly.

(v) selecting follow-up workers who are skilled in human relationships and committed to their jobs.

(vi) providing adequate training and incentives to follow-up workers to ensure that they see follow-up as a challenging and worthwhile undertaking.

(vii) making creative use of all leads to subjects and being flexible as to times and places for conducting interviews.

These procedures have been variously elaborated by Caddy (17); Eckland (30); Johnston et al. (31); Brunner and Caroll (32); Erickson and Salutin (33); and Melotte and Ogborne (34). A technique used by Nurco et al. (35) might also be useful in cases where follow-up interviewers have limited time to "chase" difficult patients. This involves the use of a "locator" whose sole responsibility is to find patients and encourage them to be interviewed.

The payment of patients for follow-up interviews has not been a feature of treatment outcome studies and it is uncertain if this would facilitate posttreatment contacts and cooperation. Certainly without offering any financial incentives some follow-up studies have been very successful (e.g. 19,36). Mention should, however, be made of the practice of having patients make monetary deposits which can be earned back by keeping follow-up appointments (37).

Ethical Problems in Follow-Up Studies

Follow-up studies involve the pursuit of patients into the community for the purposes of gathering research data. While follow-up contacts may benefit patients and even be presented as partly for patients' benefit (17), this is not a primary reason for conducting follow-up studies. If it were, follow-up and aftercare would be more closely related and follow-up contacts would be intentionally reactive. Follow-up workers would not simply review patient progress but would offer comments and suggestions and turn the follow-up interview into a "booster" session. As it is follow-up workers are expected to be "pleasant, but neutral and businesslike" (38). Follow-up workers are not encouraged to listen to all respondents' problems nor offer advice as to how these should be solved. Rather the primary concern of follow-up workers is usually to gather data. "Anything that interferes with that process or makes it more difficult should be avoided." Studies in which follow-up workers have been suspected of playing a more active role (e.g. 19,39) have been criticized for compounding follow-up with aftercare and thus overly estimating the effects of the treatments studied.

There is then a potential for follow-up to be misrepresented by a research agency or misperceived by former clients. This can be minimized by emphasizing the data gathering purpose of follow-up and instructing follow-up workers to refrain from acting as counsellors. When patients seek advice from follow-up workers they should be advised either to recontact a member of the treatment staff or to seek help from some other appropriate agency. Some procedures should, however, be set up for responding to patients found in clear need of help. Thus, follow-up workers could refer or even escort these patients to some appropriate agency. In some cases

it might also be prudent for a follow-up worker to inform a member of the treatment team that a patient may need assistance and for the therapist to then contact the patient. Clearly this would only be appropriate if the patient was amenable. The careful monitoring of follow-up contacts by some responsible individual is, therefore, necessary, as are procedures for reviewing problematic situations.

Other ethical problems which arise in follow-up studies relate to the procedures for contacting patients in the community and the handling of information obtained at follow-up. In the course of seeking patients for follow-up, it is possible that their "deviant" histories could be revealed to unsuspecting third parties. The dangers of this happening can be minimized by (a) checking with patients as to who may or may not be contacted and/or (b) having the follow-up done by, or presented as being done by, some neutral agency (i.e. a Social Research Unit).

In any event, contact persons should be approached cautiously and if necessary reasons for wishing to contact a former patient should be withheld or presented as quite innocent. Letters sent to respondents' homes should be noncommittal in content and should in no way indicate or imply that the recipient has a history of substance abuse. Stationary bearing the name of the research organization may present a problem in this regard.

Contacts with official agencies should also be handled carefully for fear of revealing information. A "neutral" reason for seeking information should be ideally used and in no case should clients' names or other information be traded for assistance. If some agencies insist on knowing the aims of the study and need patients' names to allow their own staff to search records, then the list of names could be liberally peppered with names taken at random from a telephone directory. The agency could then be told, correctly, that not all those on the list have a history of substance abuse.

Information obtained at follow-up should be treated with the same respect as any other confidential information. Personal identifiers should be stored in

separate, locked files and only code letters should appear on individual data sheets. All parties privileged to these files should be made aware of the importance of confidentiality and regularly reminded not to leave files unlocked.

For research purposes, follow-up and treatment data will certainly have to be linked and this should be made clear to all concerned. The linkage of outcome with intake and treatment data would also be desirable for program planning and therapist development. However, the feedback of person-specific outcome data to clinical services would be inappropriate where patients do not wish this to occur. Patients who disliked all or part of a program may not wish this information fed back to the program staff for fear of jeopardizing their future involvements with the program. Also patients who relapse may feel embarrassed and wish to conceal the truth from treatment personnel. Patients' understandings of the relationships between research outcome data and clinical notes should, therefore, be ascertained and patient wishes respected. In general, however, because of the importance of individualized outcome data for therapists' development and management of readmissions, research outcome data and clinical case notes should, if possible, be brought together.

The Measurement of Outcome Criteria

Having decided what, in general, are to be the criteria used in the evaluation of a substance abuse program, it is then necessary to operationalize these criteria and to develop measurement devices of known reliability and validity. It is with these latter issues that the remainder of this chapter is concerned.

Criteria Concerning the Consumption of Alcohol

Traditionally, follow-up studies of alcohol abusers have mainly focused on whether or not alcohol has been used during any follow-up period. Variation in patterns or intensity of use have tended to be collapsed into two or three categories and patients classified as either abstinent, drinking moderately or drinking heavily. Due to the influence of survey researchers and to those advocating a situationalist analysis of alcohol abuse, the need for more sensitive consumption measures is now

widely accepted (19,40) although the optimum degree of sensitivity of consumption measures necessary for treatment evaluation has yet to be determined.

Clearly there are many ways in which alcohol might be consumed over a given period of time. Thus there are several types of beverages which could be used alone or in combination (e.g. beer, wine, spirits) and these could be used in varying amounts over varying time intervals. A number of ways of summarizing alcohol use over a given time period have been proposed and these variously take account of the types of beverages used, total alcohol consumption, average quantity and frequency of alcohol intake and the concentration and variation of intake over a given follow-up period (19, 41-46). Whether or not all these aspects of consumption need to be considered in treatment evaluation studies is uncertain. Arguably both total alcohol consumption and the degree of concentration or "bingeyness" of consumption should be of interest in treatment evaluation; total consumption because of its possible significance for general physical health, and the degree of concentration of consumption because of possible specific health indications and also as an index of intoxication. Variations in consumption should also be of interest in treatment evaluation, first, because this should caution against over-simplistic summary measures of posttreatment drinking and also because, if properly analyzed, they will throw light on the contingencies which control the drinking behaviors of those concerned. Such an analysis will, as previously argued, considerably enhance the value of outcome assessment and contribute to the understanding of alcohol abuse and its treatment.

Variations in posttreatment consumption patterns seem, in practice, to be more common and extreme than has previously been recognized. Using data from published studies involving two or more follow-up interviews, Annis and Ogborne (18) found that, depending upon the criteria used, up to 65% of patients classified as having a particular outcome status at one follow-up changed their status one year later. Of particular interest was the evidence that the nature of the changes (from worse to better or vice versa) seemed to be a function of the treatment given. Patients taught controlled drinking tended to improve after drinking, while those counselled to remain abstinent tended to relapse without subsequent improvement.

Use of specific beverages may be of lesser interest in treatment and, as Vogler et al. (47) have shown, changes in beverage use were not significant in subjects who nonetheless reduced their total alcohol consumption. Measures of average quantity and frequency of alcohol use are obviously necessary to estimate total consumption and are possibly important in themselves for detecting significant changes in drinking habits and comparing differentially treated groups. Drinking in unusual circumstances (before noon, alone or with others who were not drinking) also seems relevant to the assessment of the extent to which a problem drinker has normalized his/her consumption.

If, then, reliable and valid measures can be developed, posttreatment alcohol consumption should be collected for each of a series of reasonably short time blocks (3-6 months) and within each block attention should be paid to the frequency of alcohol use (days used), the frequency of moderate or heavy use, the general style of drinking (weekend, binge, continuous), the social context of drinking, the type of beverage used, the frequency of morning drinking, the type of beverage used and the longest periods of abstinence. Periods of restricted access to alcohol (in jail or hospital) should also be documented as should periods of use of "protective" drugs (e.g. calcium carbimide).

Criteria Concerning the Use of Other Drugs

The assessment of drug consumption is even more complex than the assessment of alcohol use. There are many different types of drugs and these may be used in various combinations (including with alcohol), via various routes of administration (oral, intramuscular, intravenous), in various doses and circumstances. Considerable ingenuity and effort on behalf of researchers would, therefore, be required to obtain detailed accounts of drug use among samples of multiple drug users.

As for alcohol, the frequency with which various types of drugs are used following treatment would clearly be of relevance to treatment evaluation. The usual and maximum dose levels for each drug used would, ideally, also be determined

but this may prove difficult with street drugs which are often of unknown potency. Also some drug users take drugs quite indiscriminately and may be unaware of the doses consumed on many occasions.

The source whereby an individual obtains drugs is of interest in treatment outcome studies. Users who continue to be involved in illicit drug use and the drug subculture are in many ways likely to differ from those whose drugs are prescribed by medical practitioners. The former are more vulnerable to arrest, exploitation and overdose on drugs of unknown potency, while for the latter, drug use may be more medicinal than recreational. Clearly some types of treatment programs could effect the meaning of drug use for those involved and, therefore, modify their drug seeking behaviors (e.g. methadone or heroin maintenance programs).

Intravenous drug use is associated with a variety of hazards and the frequency with which drugs are injected following a treatment program is clearly of interest for treatment evaluation.

The concomitant or alternating use of drugs and alcohol following treatment needs to be monitored. Many persons seeking help for alcohol problems also use other drugs and vice versa. Also the effects of some drugs are potentiated by alcohol and some combinations are especially dangerous. Alcohol use by former narcotic users may be especially common.

Methods of Assessing the Use of Alcohol and Other Drugs

Social scientists have four classes of techniques for collecting data (48).

1. *Recording* of behaviors
   - A. By human observation
   - B. By mechanical means (cameras, response counters, etc.)
2. *Self report* of behaviors, opinions, attitudes
   - A. By questionnaires, surveys, self-monitoring devices, diaries
   - B. By interviews

3. *Physical traces* - e.g. blood alcohol levels, liver function tests, nicotine stains, beer cans left from drinking, injection marks
4. *Archives* - i.e. data available from record-keeping agencies of various types (police, welfare, treatment programs)

Each of these classes of data collection techniques has various advantages and problems and these will now be briefly considered for the assessment of alcohol and drug use.

Self-Reports of Alcohol and Drug Use

Self-reports have several obvious disadvantages for assessing the use of psychoactive substances. Thus the individual user may forget what was used on a particular occasion or he/she may deliberately distort accounts of substance abuse to impress, shock or otherwise mislead those making inquiries. The very fact of psychoactive substance use is likely to impair an individual's recall of previous events and in some cases this impairment can be severe (e.g. alcoholic blackouts). The illegal nature of much drug use is, of course, another factor likely to moderate the validity of self-reports.

Despite these disadvantages, however, self-reports have been the preferred data collection device in many treatment outcome studies. The reason is simply that the individual user is the only source of much relevant consumption data. The private nature of much alcohol and drug use clearly limits the extent to which third parties could give a detailed account of such use. Also most substances are quickly metabolized by the body and cannot be detected in blood or urine samples taken more than a few hours, or at most a few days, after use had ceased. Self-reports are thus likely to continue to play a key role in treatment outcome studies although increasingly these are being supplemented with, and where possible, verified against, data from other sources.

Reliability and validity studies of self-reports of alcohol and drug use have recently been reviewed by several contributors to a book on treatment evaluation

edited by Sobell et al. (49). The reports of the Rand Corporation (50,51) also include important sections on self-reports of alcohol use. Skinner (52) also discusses self-report reliability and validity studies in detail.

While some reliability and/or validity studies of self-reports of substance use seem to suggest that these reports may be seriously inaccurate (e.g. 53,54) a careful reading of these and other studies suggests that, in certain circumstances, self-reports can provide a reasonably accurate account of the individual substance use.

Conditions favourable to reliable and valid self reports seem to be as follows:

(a) Patients are assured that all information will be treated in the strictest confidence and that they will in no way suffer or be negatively evaluated if they report illegal activities or the excessive use of any substance.

(b) Patients are not intoxicated at the time of reporting substance use.

(c) Patients are fully informed and aware of the importance of accuracy of self-reports for the purposes of program evaluation.

(d) Those seeking the information are familiar to the patient and have developed a trusting relationship with him/her.

(e) The period over which recall is required is not excessive.

(f) Creative use is made of "aids" to recall e.g. consulting diaries, making references to salient anchor prints such as birthdates, holidays, periods of invariant substance use.

(g) Patients are asked to explain discrepancies in their accounts of substance use, e.g., being admitted to detox is discrepant with the claim of abstinence.

(h) The concern is with relatively gross and not with overly fine discriminations e.g. ever used or used more than 10 times vs. exact number of times used in a given period.

(i) Patients are rewarded for keeping a running record of their use of psychoactive substances on some easy to use recording form.

The last of these conditions, which is usually referred to as self-monitoring, has been used for research purposes by Miller (55) and Boudin (19) although in studies

in other areas self-monitoring has been advocated as a therapeutic device for changing the frequency with which problematic behaviors occur (56). The possibility that self-monitoring has a reactive effect on substance use should, therefore, be considered in studies using this as a data collection device (57).

In general, however, measures of substance use based solely on self-reports should be approached with caution. Many questions concerning their reliability and validity remain unanswered and whenever possible self-reports should be complemented by data from alternative sources. Unfortunately, as will be evident from subsequent sections of this review, there are no ideal alternatives to self-reports if detailed accounts of drinking patterns following treatments are desired.

Collateral Reports of Substance Use

A number of individuals may be in positions to witness at least some of the alcohol and drug usage of patients leaving treatment programs (e.g. wives, other family members, friends, neighbours, colleagues, employers). These observers, some of whom may participate in substance use, could then potentially contribute information relevant to treatment outcome evaluation. The extent to which this potential is fulfilled will depend upon the willingness of these parties to report on the target individual and the accuracy and completeness of reporting.

Studies in which substance users have been asked to nominate collaterals who could verify the target's accounts of substance use have been remarkably successful in obtaining the cooperation of most concerned parties (58-62). In fact there seems to be no difficulties in persuading patients to allow researchers to contact their relatives or friends and no evidence that these parties are reluctant to report on patients. This is surprising given that the main reason for wishing to contact collaterals is that there are doubts about the validity of reports obtained directly from patients. It is possible that the involvement of third parties is seen by patients and collaterals as being for patients' benefit and this may indeed turn out to be the case (e.g. because of increased attentions from a concerned collateral). However,

when the intention is purely to enhance the validity of research data, this should be made clear to all concerned.

There have been few studies of the reliability and validity of collateral reports and for the most part collateral reports have only been compared with self-reports, presumably on the assumption the high agreement would increase confidence in patients reports while low agreement would cast doubt on the patient. Typically patient and collaterals have been found to give accounts of substance use which agree to a moderate extent, with the extent of agreeement being dependent on the training of interviewers and collaterals and the degree of precision required. Approximately equal numbers of collaterals overestimate and underestimate patients' own reports.

The validity of collateral reports of alcohol consumption is challenged by results presented by the RAND researchers (50). These results were based on observer ratings and BAC measures taken from clients admitted to a treatment program. The observers were experienced workers in the alcoholism field and were asked to rate subjects on a 4-point scale according to their apparent degree of intoxication. These ratings were found to have a modest correlation with BAC levels (+.55). Almost all errors were due to observer underestimations of the degree of intoxication and, in all, nine percent of subjects with positive BAC levels were rated as alcohol-free by observers. Similar results emerged from a parallel study reported by Sobell (63). Studies by McCrady et al. (59) and Maisto et al. (61) also suggest that correlations between self-reported consumption and reports from collaterals tend to be moderate, unless subjects have been largely sober or drunk.

Direct Observations of Alcohol and Drug Use

While direct, unobtrusive observations of posttreatment substance use in the community would be highly desirable for treatment evaluation, it is unlikely that such observations could be made over long periods on large numbers of subjects. Direct observations of alcohol and drug consumption have, however, been used in

laboratory settings or in simulated natural environments and these observations have been used to evaluate treatment interventions.

Miller and Hersen (63), for example, used a "taste test" to evaluate the effects of an aversive conditioning procedure with hospitalized alcoholics. The taste test requires subjects to rate the taste of alcoholic and non-alcoholic beverages. The variable of interest, however, is the amount of alcohol consumed during the test. Silverstein et al. (64) and Wilson et al. (65) provide examples of the use of "ad lib" drinking in a simulated natural environment to assess the effects of other types of behavioral interventions. Operant procedures, in which subjects are required to do varying amounts of "work" to gain access to alcohol, have also been used in laboratory tests of treatment interventions (e.g. 66).

The use of these analogue techniques in community follow-up studies has not been fully explored. Their use for the evaluation of abstinence-oriented programs, or with abstinent problem drinkers, is clearly limited for ethical reasons, and the generalizability of results from such procedures to real life situations is questionable. Of interest, however, are the results of studies by Skolada et al. (67), Miller et al. (66), and Alterman et al. (68), which suggest a marked correspondence between observations of in-hospital drinking and later drinking in the environment as reported by patients and their relatives.

A recent study by Brandsma et al. (69) did involve the use of an operant procedure (bar-pressing for money or preferred beverage) in a community follow-up study. Few details of the results are, however, given. Specifically, the number of patients choosing cash or alcohol at follow-up is not reported nor are relationships between the results of the operant task and other outcome variables.

Direct observations of narcotic use have been used in studies of narcotic antagonists (70) but only with patients in a locked, experimental ward. Opportunities to directly observe substance use in community settings do, of course, occur whenever follow-up workers establish face-to-face contacts with former patients. It is unlikely, however, that the behavior of former patients during

prearranged follow-up interviews will be typical of their behavior at other times. Thus unless there are sufficient resources to allow follow-up workers to engage in the ethically dubious practice of randomly "snooping" on ex-patients, it is unlikely that direct observations could play a major role in community follow-up studies.

Direct Observations of Reactions to Drug-Related Stimuli

Mention should be made of other performance measures which show promise as indicators of actual or potential substance use in community settings. These are the Behavioral Preference and Behavioral Observation measures proposed by Marlatt (71); the Situational Competency Test developed by Chaney et al. (72); and measures of physiological reactivity as used by Hallam et al. (73).

Marlatt's Behavioral Preference Test involves presenting subjects with 50 different slides showing the major varieties of alcoholic and non-alcoholic beverages and common food items. For each slide, subjects are asked if they would like to have the substance depicted. The variables of interest are the latency of response and the decision. Marlatt's Behavioral Observation measures are derived for a 3-minute observation of patients asked to wait in a room containing various alcoholic and non-alcoholic beverages in "temporary storage". The variable of interest is the tendency of subjects to approach or avoid the alcoholic drinks.

In one study conducted by Marlatt, measures from both the Behavioral Preference Test and the Behavioral Observation situation were consistent with self-reports of drinking in a 3-month follow-up. Statistical tests of the relationships between these and other outcome measures were not, however, performed.

The Situational Competency Test involves an audiotaped presentation of descriptions of a range of situations typically associated with alcoholic relapse. Subjects are required to indicate how they would cope with each situation. Subjects' responses are taped and later scored for latency, duration, degree of compliance and degree of specificity of alternatives to drinking.

In a recent study, Chaney et al. (74) found high correlations between latency scores derived from posttreatment results of the Situational Competency Test and posttreatment drinking measures based on self-report. For the variable, "days abstinent" assessed over a one year follow-up period, latency of response accounted for 50% of the variance. As Chaney et al. conclude, such a result establishes a relationship between the ability to respond to problematic situations in a verbal role-playing test and acutal drinking in the community.

As part of their evaluation of electrical aversion therapy and general psychiatric treatment for problem drinkers, Hallam et al. (75) obtained heart rate and skin resistance measures before, during and after subjects were asked to view photographic slides of bar scenes or to imagine drinking or nondrinking situations. While the type of treatment had no effect on either skin resistance or heart rate sensitivity, patients found to be abstinent four months after treatment had shown persistent heart rate sensitivity to both "neutral" and "drinking" fantasies when tested immediately after treatment. Successful subjects had also shown larger shifts toward negative attitudes to drinking slides than unsuccessful cases when tested before and after treatment.

Biochemical Tests and Alcohol and Drug Use

Direct biochemical evidence of the use of alcohol and most other psychoactive substances can be provided by urine and/or blood sample analysis. Technical and administrative problems in screening urine samples can, however, seriously limit the utility of this method for the detection of drug and alcohol use. Thus although urine analysis using gas-liquid or thin layer chromatography is reliable under strict laboratory conditions, one study showed that incomplete and slipshod procedures can lead to inaccuracies of up to 100% (75,76). Laboratories unaware that their performance is being monitored have also been found to report up to 63% false positives (77).

Despite these problems urine analysis has been used extensively in treatment monitoring and treatment outcome studies of narcotic users (8). Urine samples

have not generally been used in the evaluation of alcohol treatment programs. For these evaluations the use of breathalyzers is, however, becoming quite common.

Blood samples have not been used in outcome studies of drug users. Blood samples have been obtained from treated alcohol users not so much to test directly for the presence of alcohol but to monitor liver enzymes which have shown promise as markers of recent drinking (37). Serum levels of the enzyme gamma glutamyl transpeptidase were at one time thought to be a reliable marker for alcohol consumption (76) although results from more recent studies suggest that this promise has not been fulfilled (77,78). Currently, other biomedical markers of recent alcohol consumption are being investigated and the available results suggest that combinations of results from several biochemical tests may provide quite sensitive measures of recent alcohol use (79-81).

Urine monitoring for the presence of drugs and blood sample analysis of liver enzyme levels, of course, require patient cooperation and are potentially quite reactive. That is, patients may modify their substance use as a function of testing and this could give rise to a biased estimate of the efficacy of any other treatments being evaluated. Procedures for estimating the extent of this reactivity should, therefore, be developed.

A test reported by Phillips et al. (82) seems to have promise as providing an objective indication of alcohol consumption. This test requires subjects to have a small, absorbent pad taped to the skin. The pad absorbs sweat which contains traces of any alcohol consumed by the wearer. Upon removal from subjects, the ratio of alcohol to sweat in the pad can be determined with gas chromatography. Preliminary results using four test subjects monitored over an eight day period show a remarkably high correlation (.922) between the square root of the sweat/alcohol concentration and average daily alcohol consumption. The feasibility of using sweat tests for long-term follow-up of treated patients has yet to be investigated, as has the possible reactivity of such tests.

The routine use of breathalyzers during follow-up interviews would seem to be particularly desirable for this would reliably indicate alcohol use in the period proceeding the interview and validate self-reported consumption during this time. Also subjects with high blood alcohol levels could be re-interviewed when sober given the evidence that self-reports of alcohol consumption are likely to be biased if given under the influence of alcohol (63). As previously noted, however, drinking and drug use behaviors preceding a planned follow-up interview may not be representative of behaviors at other times. Random sampling of BAC levels of problem drinkers in the community has been obtained in a few studies (83,84), but such sampling is unlikely to be practical for studies involving large numbers of patients followed for long periods. Random sampling of BAC levels also seem to have a reactive effect on consumption (83) and is unlikely to be acceptable to the majority of subjects.

Record-Keeping Agencies as Sources of Information on Substance Use

Records kept by police, counsellors, treatment agencies and others with whom discharged patients may come into contact do not typically include detailed accounts of substance use. Thus while these records may note that a particular client was, say, "arrested for possession of cannabis" or "drinking heavily" it would be unusual to find vairables such as "days drinking" or "times injected" recorded. Records of all kinds are only as good as the information recorded and the accuracy with which this recording takes place. Also records may not always be fully up to date. Access to official records has rightly become more difficult thanks to the efforts of those concerned with confidentiality issues. Typically access to records now requires the signed consent of the individuals whose records are required.

The use of official records for obtaining detailed accounts of substance use is thus likely to be of limited value. Records may, however, provide some gross indications of the use pattern of some individuals.

The Utility of Alternatives to Self-Reports of Substance Use

Doubts about the reliability and validity of self-reports have led many researchers to become enthusiastic about alternative ways of estimating posttreatment alcohol and drug use. Biochemical tests have, in particular, been seen as finally providing objective, non-reactive indications of alcohol use which could be used for diagnostic and evaluative purposes. At present, however, enthusiasm for any of the above alternatives to self-reports in community follow-up studies seems unwarranted. Only direct observations, breath, blood or urine samples could furnish completely valid information on substance use but there would be enormous practical and ethical problems involved in using these techniques at random intervals with patients in the community.

At present, then, neither self-reports nor any single alternative have been shown to be entirely appropriate for assessing posttreatment substance use. In time, some satisfactory, substance-specific consumption estimates may be developed but at present more attention needs to be paid to the strengths and weaknesses of the various alternatives currently available. We need to know, for example, under what conditions each measure might be optimally used and how various measures correlate with each other. Multiple measures of posttreatment substance use should, therefore, be a feature of future treatment evaluation studies.

Alcohol and Drug-Related Problems as Criteria for Treatment Outcome Evaluation

Alcohol and drug users seeking help often do so because their substance use has resulted in some kind of social, legal or physical problem. While some such problems may be associated with particular levels or patterns of consumption, the overall relationships between consumption and related problems are highly complex. Treatment evaluations should, then, in addition to seeking changes in consumption patterns, also consider the extent to which treatments reduce or otherwise change the types of related problems experienced by those involved. Typically, this has been the case in recent evaluative studies. The most common problems considered are substance-related arrests, automobile accidents, hospitalizations, days lost from work, and indices of dependence, intoxication or impairment.

Arrests and Other Involvements with the Police

The utility of arrests and other legal problems for the evaluation of treatment programs varies with the type of population treated. Socially stable problem drinkers are typically arrested less frequently than street drug users or homeless drunks and police sometimes escort inebriated, socially stable persons home without laying a charge. For chronic police arrestees the absence of an arrest record for a significant period following treatment may indicate treatment success. However, police involvements with, and management of, publicly intoxicated individuals (especially "skid-row" alcoholics) tends to vary with public interest, the seasons and familiarity with individuals. Also, the opening of detoxication centres has, in some jurisdictions, altered police responses to public intoxication. Arrests and the involvements with police should then be used as adjunctive, rather than primary criteria, in the evaluation of treatment programs.

Treatment Contracts and Work Patterns

As with police involvements, the utility of these measures for treatment evaluations varies with the population treated. Also the availability of treatment resources will clearly determine treatment patterns of problem drinkers and general economic conditions will affect work habits. Treatment contacts and work patterns should then be used in addition to, and not in place of, other criteria for treatment outcome.

Reliability and Validity of Self-Reports of Arrests, Treatment Contacts and Work

Studies relevant to this topic have been reviewed in detail by several contributors to the previously mentioned book edited by Sobell et al. (49). While some studies cast doubts on the validity of self-reports others have shown that problem drinkers and narcotic users will give accounts of their arrests, treatment contacts and work involvements which tally reasonably well with records kept by official agencies. When discrepancies do occur they are often due to the incompleteness of records. Although detailed studies are lacking it is probably reasonable to assume that those factors contributing to the reliability and validity

of self-reports of substance use (see above) also contribute to the accuracy of self-reports of other matters.

Scales and Indices of Problems Related to Substance Use

Thus far in this section, a limited number of severe substance-related difficulties have been considered singly as potential indicators of treatment outcome. Clinical populations tend, however, to evidence a wide range of difficulties and several researchers have proposed ways of combining items defining those difficulties into indices and scales. Such indices and scales are potentially more useful in treatment evaluation than the single items of which they are composed, because properly constructed scales are likely to offer more valid indicators of substance use problems. Also scale and index scores should be more reliable than single item scores.

Detailed reviews of several alcohol problem scales and of other scales used in alcoholism treatment research are given by Miller (40) and Jacobson (85). While most of the scales considered by these authors were designed mainly for diagnosis and screening, several could, with simple modifications, be adapted for outcome evaluation. Thus, questions which ask if particular problems have "ever" been experienced could be rephrased to refer to the experience of these problems during a particular follow-up period. The Alcohol Use Inventory (86) is an obvious candidate for such a modification and this has apparently already been done (40).

Problem index scores have been used in two recent alcoholism treatment evaluation studies. In the study by Brandsma et al. (69) a 19-item "craving" and a 13-item "withdrawal" questionnaire were administered at intake, at the end of treatment and every three months for one year thereafter. These questionnaires were based on scales originally developed by Ludwig and Wikler (87) and included items concerning the intensity of felt needs for alcohol and the frequency of occurrence of various symptoms of alcohol withdrawal. Unfortunately, Brandsma et al. do not give the results obtained with these questionnaires nor any information as to the reliability or validity of the scores obtained.

Armor et al. (51) used a 12-item behavioral impairment index composed of items relating to serious physical and behavioral impairments due to alcohol consumption. The internal consistency of this index was substantial (Cronbach's alpha = .84), and 11 of the 12 items had moderate to high loadings on the first factor identified by factor analysis of responses of 329 male problem drinkers. Scores on the behavioral impairment index were highly correlated with self-reported alcohol consumption (.68) in two samples (N > 326 and N > 595).

Other scales proposed for treatment outcome research are the Alcoholic Involvement Scale (Gilles et al., 88), the Missouri Alcoholism Scale (89) and a scale of Alcohol Dependence developed by Stockwell et al. (90). A source book of instruments potentially useful in assessing drug use for treatment evaluation has been prepared for the U.S. National Institute on Drug Abuse (91). A detailed review of these scales is, however, beyond the scope of this chapter.

Other Outcome Criteria

A wide range of variables not directly related to substance use has been suggested as useful in the evaluation of substance abuse treatment programs (see above). Suggestions for measuring some of these variables (vocational adjustment, residential status, social and family adjustments, financial problems) are given by Sobell and Sobell (19) while alternative ways of measuring work and school involvements are suggested by Boudin (9). As recommended by Sobell and Sobell, all treatment outcome measures should ideally be continuous and quantifiable.

Scales and indices for many variables of interest in substance use studies have been developed by researchers in other fields and these could usefully be incorporated into future alcohol treatment evaluations. An excellent review of scales useful to the general field of psychotherapy evaluation has been prepared by Waskow and Parloff (92) and, of course, reviews of these and of many other measurements appear in various editions of the Mental Measurements Yearbook (93).

Researchers who view substance abuse as a behavioral response to environmental and/or covert stimuli will properly see treatment outcome research as doing more than simply documenting the status of former program clients on a range of outcome variables. Rather, a situationalist analysis of substance abuse should lead to methods of treatment evaluation which not only consider what behaviors occurred following treatment, but also in what situations these behaviors took place. These situations may be defined in terms of their objective characteristics or the meanings ascribed to them by the individuals involved (94). In either case, changes in the functional significance of the resultant, targeted behaviors would be of as much interest as their particular objective characteristics.

As an example, consider the evaluation of a treatment designed to modify alcohol use in stress situations. The evaluation of such a program would be incomplete and possibly misleading if drinking per se were the only outcome of interest. Only when posttreatment responses to stressors equal to those provoking drinking before treatment have been considered will the evaluation of the program be complete. If no stressors occurred during a given follow-up period, then the full impact of the program could not be assessed and drinking during this period might be a poor indicator of future drinking at times of stress. Similar arguments apply to treatments designed to modify excessive drinking during periods of celebration. In such cases drinking at Christmastime would clearly be of more significance than at other, non-festive occasions.

The assessment of the functional significance of substance use for real-life situations would, ideally, be based upon detailed, long-term monitoring of behaviors in the natural environment. Economic and other practical constraints clearly limit the extent to which this is normally possible and thus, as with the assessment of substance use per se, the assessment of the functional significance of such use is dependent upon self-reports or other indirect measures.

Marlatt's "behavioral interview" (95) and the associated Situational Competency Test, previously mentioned as yielding latency measures correlated with alcohol consumption, are examples of instruments designed to assess the

functional significance of drinking which seem to have promise for comprehensive behavioral treatment outcome evaluation. The Situational Competency Test, in particular, seems directly to address the issue of how treated problem drinkers will respond when faced with the situations which are likely to precipitate drinking bouts. Studies of the reliability and predictive validity of this and similar instruments are, therefore, clearly needed.

Global Outcome Measures

Sometimes in treatment evaluations different outcome measures have been combined to yield a composite outcome score. Most common are scores based on measures of consumption and related problems. Edwards (96) provides a fairly typical example. In Edwards' study subjects were interviewed monthly for one year and after each interview given one of the following scores: 2 if completely sober during the previous month or drinking on seven days or less without interference with social functioning, 1 if drinking on more than seven days or occasional drink-related social incapacity (days off work), and 0 if drinking heavily with social incapacity (unemployed, in hospital or jail). Edwards also rated each subject as having had a good, fair or poor outcome depending on the sum of their scores for the year.

A more complex index was developed by Sobell and Sobell (19). This was based on self-reported drinking, collateral ratings of general adjustment and self-ratings of vocational adjustment. The index, labelled General Index of Outcome (GIO) was calculated by averaging the sum of days abstinent or controlled drinking and the ratings given for general and vocational adjustment (1 = improved; 0.5 = same; 0 = worse).

Sobell and Sobell also developed an outcome index labelled Factor Success. This was based on the same three variables as their GIO but simply took account of the number of variables on which subjects were successful. Scores on both GIO and Factor Success were consistent with those for drinking and other outcome measures.

The appropriateness of global outcome measures may be questioned on both theoretical and empirical grounds. Thus the use of a single broad dimension of treatment outcome is inconsistent with the complex, multi-faceted nature of problem drinking and its treatment (7). Even those who subscribe to the disease concept of alcoholism recognize its complexity and propose multiple symptom levels and stages of severity (97) criteria. Also, a behavioral analysis of problem drinking makes it clear that lasting changes in drinking behaviors are unlikely to be brought about unless attempts are also made to modify associated behavioral and interpersonal problems (20). Global outcome measures are thus likely to mask varying degrees of success. The empirical evidence respecting treatment outcomes is consistent with this view and suggests that the building of global outcome indices should be approached with caution (7,12,98,99).

The work of Foster et al. (7) is particularly illuminating. This involved a factor analysis of responses to a 63-item follow-up questionnaire by 142 patients three months after discharge from an inpatient program. The analysis suggested that treatment outcome could be assessed along a single broad dimension or along seven relatively independent dimensions: abstinence, interviewer success ratings, economic adjustment, self-claimed improvement, decrease in sociopathy, interpersonal adjustment, and social involvement. With the exception of the interviewer rating factor, all others had internal consistencies which exceeded their inter-correlations indicating that, in part, the outcome variance due to each factor was unique. Foster et al. conclude that "for a full understanding of treatments, outcomes of therapy should be measured on the seven independent dimensions -- as well as on the general factor".

Conclusions

Follow-up studies present many challenges. They abound with technical, ethical and practical problems, take a long time to complete and demand that researchers leave the relative ease of their laboratories, offices and conference rooms to become involved in the unstructured, and sometimes, unsavoury, worlds of people having difficulties in coping. Small wonder, therefore, that to date follow-up

has been the most neglected feature of substance abuse treatment research. Thankfully, many are now beginning to rise to these challenges and the literature has lately been enriched by several follow-up studies which have been exceptionally well planned and executed. Standards for follow-up have, therefore, been set very high, and we must wait to see if these are maintained.

The need for objective, reliable outcome measures of drug consumption for the evaluation of substance-abuse treatment programs has long been recognized. Progress toward the development of such measures has been slow yet deliberate and although not one completely satisfactory measure is currently available, the strengths and weaknesses of several alternatives are rapidly becoming clearer. Multiple measures of posttreatment consumption should, therefore, be a feature of future treatment evaluation studies. Promising developments in the field of biochemistry may shortly lead to reliable methods for assessing recent substance use in treated populations. These methods are unlikely, however, to be capable of detecting longer term patterns of use and it would be folly to assume that biomedical technology will be any substitute for careful psycho-situational assessment.

Almost all researchers currently use multiple outcome criteria for treatment outcome assessment and this practice should continue given the heterogeneity of substance abusing populations, the variety of treatment methods available and the multi-dimensional nature of the change brought about by these treatments. More uniformity in the use of follow-up instruments and in reporting results would, however, be highly desirable given the problems of comparing results from studies using different outcome criteria.

The need for follow-up research to contribute to the understanding of the nature of substance abuse and to the development of treatment programs has been stressed through out this review. If these needs are to be satisfied, then outcome research must go beyond the simple description of what happened and tackle the more complex question of why particular outcomes occurred. Moreover, the significance of treatments for the particular experiences of those involved should

also be addressed as well as the more general question of the overall impact of treatment on the performance of treated groups. In practice this will mean paying more attention to the posttreatment situations in which various types of outcome behaviors occur and asking how, if at all, the treatments received prepared clients for dealing with these situations (21). If outcome research merely results in the acceptance or rejection of null hypotheses concerning the winner in a "horse race" between two or more treatment interventions, then it is little more than an expensive indulgence of "dust bowl" empiricism. If, on the other hand, follow-up research can enhance understanding of the nature of substance use and generate ideas about how problem drinking might be further studied and treated, then the necessary time and money will have been well spent.

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Chapter Nine

A BASIC FOLLOW-UP PACKAGE*

by Helen M. Annis

The problems involved in evaluating clinical service programmes are well known. The scientific literature on outcome of traditional sociobehavioural treatment programmes for alcohol and other drug abusers suggests that these programmes are not effective for many clients. Within the Clinical Institute (C.I.), each of the clinical service programmes is used as a resource setting to conduct time-limited, treatment research trials typically employing randomized control group designs. It has been found that many of the service programmes can accommodate more than one treatment outcome study. Recent initiatives have been taken to standardize some components of follow-up data-gathering procedures across all clients who are involved in C.I. outcome evaluations. This provision will produce a very extensive data base enabling scientists to conduct multivariate outcome evaluations across a broad variety of treatment intervention programmes.

This chapter presents the follow-up elements that are currently being collected for all treatment research studies undertaken in the Clinical Institute. A minimum 18 month post-treatment follow-up interval is adopted with data collected at 6-month intervals. It should also be noted that, in general, the data gathered here mirrors the data gathered upon initial assessment (see chapter 11, volume II). Such

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*Acknowledgements: The elements of the Basic Follow-Up Package were agreed upon by members of a Task Force - Dr. M. Sobell (Chairman), Dr. H. Annis, Dr. F. Glaser, Dr. A. Ogborne, Dr. M. Sanchez-Craig, Dr. H. Skinner, and Dr. A. Wilkinson.

uniformity is required to permit the client's status following treatment to be compared systematically with his status prior to treatment. This provides an indication of the effectiveness of the treatment programme. Follow-up may be considered a re-assessment procedure.

In many, perhaps most, instances, particular treatment programmes may find that a portion of their therapeutic effort is devoted to the achievement of specific goals which do not fall within the preview of this basic package. For this reason the package is designated as a basic follow-up package. It is to be expected that individual programmes will add measures related to their unique goals both to the follow-up package and to the initial assessment package in order to gauge the effect of treatment in areas of particular interest to them.

CROSS-STUDY
SHARED DATA BASE
FOLLOW-UP INTERVIEW

PATIENT NUMBER ____ FORM ID ____ YR MO DY DATE ADMINISTERED ____ PATIENT NAME _____

(check 1:) ☐ 6 mo. (-F1) ☐ 12 mo. (-F2) ☐ 18 mo. (-F3) after end of treatment NAME OF STAFF-MEMBER COMPLETING FORM _____

A. DEMOGRAPHIC AND LIFE HISTORY CHARACTERISTICS

Social Stability Index

ACCOM- Present Accommodation

1 = own house
2 = apartment or rented house
3 = room
4 = institution
5 = no fixed address (incl. hostel)
6 = other: _____ ☐

FAMTAC- Frequency of Family Contact Over Past 6 Months

With Whom:
Specify _____

1 = daily
2 = weekly
3 = monthly
4 = less than monthly
5 = none ☐

LIVFAM- Can Return to Live with Family

1 = yes
2 = uncertain
3 = no
8 = does not apply ☐

JOBNOW- Presently Employed

1 = yes
2 = no
8 = does not apply ☐

JOBMO- Number of Months Employed Full Time or Part Time, Past 6 Months

0-6 ☐☐

JOBCHG- Number of Job Changes, Past 6 Months

0-15 ☐☐

LEGSTA- Current Legal Status

1 = no problems
2 = awaiting trial
3 = on probation or parole
4 = in jail ☐

MOVED- Times Moved in the Past 6 Months

0-10 ☐☐

BOOTED-	Times Lost Accommodation Due to Alcohol or Drug Use, Past 6 Months	0-10	⌊⌋

Legal History

			Past 6 Months
JAIL6M-	Days Incarcerated, Past 6 Months	0-190	⌊⌋⌋
RAP6M-	Number of Convictions for Alcohol and Drug Offenses, Past 6 Months	0-10	⌊⌋

Employment History

OWNINC-	Personal Income (to nearest thousand dollars), Past 6 Months	0-100	⌊⌋⌋
WELUIC-	Weeks on Welfare or U.I.C., Past 6 Months	0-26	⌊⌋
FAMINC-	Family Income (to nearest thousand dollars), Past 6 Months	0-100	⌊⌋
JOBLST-	Number of Times Patient Lost Jobs Due to Alcohol or Drug Use, Past 6 Months	0-10	⌊⌋

Treatment History

Indicate the number of times the patient has received each of the four treatment categories during the past 6 months, for each substance problem:

Substance:	Frequency during Past 6 Months			
	Detox (-OX6M-)	Overdose (-OD6M-)	Outpatient (-OT6M-)	Inpatient (-IP6M-)
Alcohol Only (AL-	⌊⌋	⌊⌋	⌊⌋	⌊⌋
Other Drug Only (specify: _____) (DR-	⌊⌋	⌊⌋	⌊⌋	⌊⌋
Alcohol and Other Drug (specify drug: _____) (AD-	⌊⌋	⌊⌋	⌊⌋	⌊⌋

DAYN6M Days in Hospital for Alcohol or Drug-Related Problems 0-190 ⌊⌊⌊

HOSP6M- Number of Hospital Admissions NOT Related to Alcohol or Drug Use 0-10 Past 6 Months ⌊⌊

AA6M- Times attended A.A. 0-190 ⌊⌊⌊

B. ALCOHOL CONSUMPTION

			Past 30 Days	Past 90 Days	Past 180 Days
ABST1M- ABST3M- ABST6M-	Abstinent Days	0-	⌊⌊ 30	⌊⌊ 90	⌊⌊⌊ 180
DDAY1M- DDAY3M- DDAY6M-	Drinking Days	0-	⌊⌊ 30	⌊⌊ 90	⌊⌊⌊ 180
	FIGURES WITHIN EACH BOX MUST TOTAL:		**30**	**90**	**180**

Consumption Levels

			Past 30 Days	Past 90 Days	Past 180 Days
LODA1M- LODA3M- LODA6M-	Days on Which 1 to 4 Drinks Were Consumed	0-	⌊⌊ 30	⌊⌊ 90	⌊⌊⌊ 180
MIDA1M- MIDA3M- MIDA6M-	Days on Which 5 to 9 Drinks Were Consumed	0-	⌊⌊ 30	⌊⌊ 90	⌊⌊⌊ 180
HIDA1M- HIDA3M- HIDA6M-	Days on Which 10 or More Drinks Were Consumed	0-	⌊⌊ 30	⌊⌊ 90	⌊⌊⌊ 180

FIGURES WITHIN EACH BOX MUST TOTAL TO THE CORRESPONDING NUMBER OF DRINKING DAYS ABOVE

		Past 30 Days	Past 90 Days	Past 180 Days
AV101M- AV103M- AV106M-	Average Number of Drinks Consumed on Drinking Days When More Than 10 Drinks Were Consumed	10- ⌊⌋ 70	⌊⌋ 70	⌊⌋ 70
STYL1M- STYL3M- STYL6M-	Drinking Style 1 = weekend 2 = binge 3 = steady 4 = other: _____	⌊⌋	⌊⌋	⌊⌋

Social Context

LONE1M- LONE3M- LONE6M-	Percent of Time Spent Drinking Alone	0- ⌊⌋ 100	⌊⌋ 100	⌊⌋ 100
OMOR1M- OMOR3M- OMOR6M-	Percent of Time Spent Drinking with Others Who Drank More than Patient	0- ⌊⌋ 100	⌊⌋ 100	⌊⌋ 100
OLES1M- OLES3M- OLES6M-	Percent of Time Spent Drinking with Others Who Drank Less than Patient	0- ⌊⌋ 100	⌊⌋ 100	⌊⌋ 100

FIGURES WITHIN EACH BOX MUST TOTAL 100.

Beverage		Past 30 Days	Past 90 Days	Past 180 Days
BEER1M- BEER3M- BEER6M-	Proportion of Consumption Involving Beer	0- 100	100	100
WINE1M- WINE3M- WINE6M-	Proportion of Consumption Involving Wine	0- 100	100	100
FORT1M- FORT3M- FORT6M-	Proportion of Consumption Involving Fortified Wine	0- 100	100	100
LIQ1M- LIQ3M- LIQ6M-	Proportion of Consumption Involving Liquor	0- 100	100	100
X1M- X3M- X6M-	Proportion of Consumption Involving Other Forms Of Alcohol (specify: _____)	0- 100	100	100

FIGURES WITHIN EACH BOX MUST TOTAL 100.

TECT1M- TECT3M- TECT6M-	Number of Abstinent Days in a Protective Environment	0- 30	90	180
MORN1M- MORN3M- MORN6M-	Number of Days on Which Patient Drank Before Noon	0- 30	90	180
LONG1M- LONG3M- LONG6M-	Longest Interval of Days Without a Drink	0- 30	90	180
SINCAL-	Time Elapsed Since Last Use of Alcohol	0-200 0-24		days hours

DTODAY- Number of Drinks (since midnight) on Day of Interview 0-20 ⌊_⌋

DYEST- Number of Drinks on the Day Before Interview 0-40 ⌊__⌋

C. FOLLOW-UP DRUG USE HISTORY

DRUG TYPE	Used During Past 6 Months (1 = no, 2 = yes) -USED-	Most Typical Route of Administration (1 = oral, 2 = sniffed, 3 = injected, 4 = smoked, 5 = inhaled, 6 = other) -ROUT-	Number of Days Used in Preceding... 30 Days -DY1M-	90 Days -DY3M-	180 Days -DY6M-	Typical Daily Frequency of Use in Preceding... 30 Days -FQ1M-	90 Days -FQ3M-	180 Days -FQ6M-
CANNABIS: marijuana, hashish, hash oil CN-								
STIMULANTS: cocaine CO-								
STIMULANTS: methamphetamine (e.g.: speed) SP-								
STIMULANTS: others (e.g.: ritalin, diet pills or amphetamines) OS-								
DEPRESSANTS: anti-anxiety drugs (e.g.: valium, librium) VA-								
DEPRESSANTS: others, esp. sedative hypnotics (e.g.: Amytal, Dalmane) OD-								
NARCOTICS: heroin HE-								
NARCOTICS: methadone MD-								
NARCOTICS: over-the-counter (e.g.: 222's) NO-								
NARCOTICS: other (e.g.: opium, morphine, Demerol, Dilaudid) OC-								
INHALANTS: glue, solvents, aerosols IH-								
INHALANTS: volatile nitrates NI-								
HALLUCINOGENS: LSD, PCP, STP, MDA, angel dust, mescaline, psilocybin, etc. HA-								
ANTI-ALCOHOL DRUGS: antabuse temposil AN-								
OTHER: Specify:_____ OT-								

NOTE: IF "EVER USED" IS 1 (NO) FOR ANY GIVEN LINE, THE REMAINDER OF THE LINE SHOULD BE LEFT BLANK.

USAGE SUMMARY

		Past 30 Days	Past 90 Days	Past 180 Days
NIL1M-, NIL3M-, NIL6M-	Days on which no alcohol or drugs were used	0- 30	90	180
ALDR1M-, ALDR3M-, ALDR6M-	Days on which both alcohol and drugs were used	0- 30	90	180
AL1M-, AL3M-, AL6M-	Days on which only alcohol was used	0- 30	90	180
DR1M-, DR3M-, DR6M-	Days on which only drugs (not alcohol) were used	0- 30	90	180

FIGURES WITHIN EACH BOX SHOULD ADD TO 30/90/180 (RESPECTIVELY, LEFT TO RIGHT)

IN31M-, IN33M-, IN36M-	Days on which any drug was injected	0- 30	90	180

D. ADVERSE CONSEQUENCES OF SUBSTANCE USE

	ALCOHOL AL-	CNS STIMULANTS ST-	TRANQUILLIZERS TQ-	NARCOTICS NA-	SEDATIVE HYPNOTICS HY-	SOLVENTS SV-	CANNABIS CA-	TOBACCO TO-	Other:	Combination:	Combination:	Combination:
-USED- Substance Used in Past 6 Months (1 = yes, 2 = no)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

NOTE: LEAVE SUBSEQUENT QUESTIONS BLANK FOR SUBSTANCES NOT USED.

Problem Areas (For each, code the highest number that applies)

-HLTH- Physical Health Impairment
(including overdose but not neurological problems unless neurological damage has been diagnosed)

0 = none
1 = doctor's health warning
2 = outpatient medical treatment for physical problem (illness or accident) related to substance use
3 = inpatient hospital treatment for physical problem (illness or accident) related to substance use

	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

-COG- Cognitive Impairment (acute or chronic)
(including flashbacks, substance-related psychoses, personality changes when using)

0 = none
1 = once
2 = more than once

	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

-PSY- Affective Impairment (acute or chronic)

0 = none
1 = minor (impairment had no important effect on daily functioning)
2 = major (impaiment had adverse consequences on daily functioning)

	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

-TOL- Tolerance
1 = no
2 = yes (increased dose necessary to get desired effect)

	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

		ALCOHOL AL-	CNS STIMULANTS ST-	TRANQUILLIZERS TQ-	NARCOTICS NA-	SEDATIVE HYPNOTICS HY-	SOLVENTS SV-	CANNABIS CA-	TOBACCO TO-	Other: ____	Combination: ____	Combination: ____	Combination: ____
-NEED-	Felt Need 0 = none 1 = mild (mild desire but no feeling of being dependent) 2 = strong (strong urge to use; feeling of being dependent)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
-INTR-	Interpersonal Problems 0 = none 1 = minor (arguments or strained relationships only) 2 = major (relationships lost or about to be broken off because of substance use)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
-AGRO-	Aggression 0 = none 1 = verbally abusive when using 2 = physically violent when using	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
.OC-	Vocational Problems 0 = none 1 = performance affected (lost time or reduced capacity) 2 = boss complaining 3 = loss of job threatened, or actual loss of job	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
-LEG-	Legal Problems (Substance-Related Charges) 0 = none 1 = charged only 2 = convicted; non-custodial sentence 3 = convicted; custodial sentence	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
-FIN-	Financial Problems 0 = none 1 = minor 2 = major	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Recent Use (Drugs)

SINCDR- Time Elapsed Since Last Use of Any Drug 0-200 ☐☐☐ days 0-24 ☐☐ hours

Drugs Used Since Midnight on Day of Assessment (specify:) _____

Drugs Used on Day Before Assessment (specify:) _____

SWITCH- Tendency to Substitute Alcohol for Drugs, or vice versa
1 = yes
2 = no ⌊_⌋

Tobacco Consumption

CIGS- Current Average Number of Cigarettes Consumed Daily 0-100 ⌊_ _ _⌋

IF ZERO, SKIP TO QUESTION ABOUT TIME ELAPSED SINCE QUITTING SMOKING BELOW.

BRAND- Curent Cigarette Brand Smoked (specify:) _____ ⌊_ _⌋

FILTER- Is Current Brand Filtered
1 = yes, filtered
2 = no, unfiltered ⌊_⌋

CIGSIZ- Size of Current Brand
1 = king-size
2 = regular ⌊_⌋

MENTH- Is Current Brand Mentholated
1 = menthol
2 = non-mentholated ⌊_⌋

TRYLES- Has Patient Attempted to Reduce Smoking during the Past Six Months?
1 = yes
2 = no ⌊_⌋

TRYSUC- If "Yes", How Successful Was the Attempt?
1 = not successful
2 = some reduction
3 = abstinent ⌊_⌋

E. NEUROPSYCHOLOGICAL FUNCTIONING

WAISDG- Digit Symbol 0-19 ⌊_ _⌋
TRAILA- Trails A 0-600 ⌊_ _ _⌋
TRAILB- Trails B 0-600 ⌊_ _ _⌋

F. BAL

BAL- Blood Alcohol Level at Time of Interview .000 - .400 .⌊_ _ _⌋

G. URINALYSIS

URINE- Alcohol Detected in Urine Sample
1 = yes
2 = no
3 = not done
[ ]

H. PATIENT'S SITUATION, BEHAVIOUR, AND ATTITUDES AT THE FOLLOW-UP INTERVIEW

BEGIN- Time Interview Began (24-hr. clock) [ ][ ]:[ ][ ]

FINISH- Time Interview Finished [ ][ ]:[ ][ ]

Interview Ratings

Using the Following Scale

1	2	3	4	5
VERY LOW				VERY HIGH

Rate Each of the Following:

RUPT- - Disruptiveness of Interview Setting [ ]

COOPPT- - Cooperativeness of Patient [ ]

SYMP- - Evidence of Withdrawal Symptoms [ ]

INFLU- Evidence of Patient under the Influence of Alcohol or Drugs
1 = certain
2 = suspicious
3 = none
[ ]

Patient's Evaluation of Treatment

LIKARF- Patient Overall Satisfaction with ARF Services
1 = very satisfactory
2 = satisfactory
3 = neutral
4 = unsatisfactory
5 = very unsatisfactory
[ ]

BAKARF- Would Patient Return to ARF?
1 = yes
2 = no
[ ]

ALDREF- Effects of Treatment on Alcohol or Drug Use
1 = decreased use
2 = no effect
3 = increased use
[ ]

OTHEF- Effects on Other Aspects of Life
1 = made better
2 = no effect
3 = made worse
[ ]

MORHLP- Needs Further Help or Treatment

1 = yes (specify:_____)
2 = no ☐

CONCON- Confidence in Future Control of Alcohol or Drug Use

1 = very confident
2 = somewhat confident
3 = neutral
4 = somewhat unconfident
5 = not confident ☐

Involvement with Alcohol or Drug Abusers

USERNO- Number of Friends/Acquaintances Who Abuse Alcohol or Other Drugs

0-50 ☐☐

USERFQ- Frequency of Contact with Alcohol/ Drug Abusers

1 = none
2 = less than monthly
3 = monthly
4 = weekly
5 = daily ☐

Frequency of Recreational Activities

HOMEFQ- Home Entertainment ☐
OUTFQ- Out-of-Home Entertainment ☐
FRNDFQ- Visiting Friends ☐
GAMEFQ- Playing Games ☐
SPRTFQ- Playing Sports ☐
HOBFQ- Hobbies ☐
CLUBFQ- Club or Group ☐

1 = none
2 = less than monthly
3 = monthly
4 = weekly
5 = daily

Health

PSYCH- Rating of Psychological Health

1 = good
2 = fair
3 = poor ☐

PHYS- Rating of Physical Health

1 = good
2 = fair
3 = poor ☐

FOR EACH QUESTION, CHECK OFF THE ANSWER THAT BEST APPLIES TO YOU.

AU19- 1. Do you get belligerent or mean when you drink?

___ 1) no
___ 2) yes, sometimes
___ 3) yes, usually

AU110- 2. Have you had blackouts (loss of memory without passing out) as a result of drinking?

___ 1) no, never
___ 2) sometimes
___ 3) often
___ 4) almost every time I drink

AU111- 3. How much did you drink the last time you drank?

___ 1) enough to get high or less
___ 2) enough to get drunk
___ 3) enough to pass out

AU112- 4. Have you passed out as a result of drinking?

___ 1) no
___ 2) about once a year
___ 3) twice a year or more

AU133- 5. When you drink, do you stumble about, stagger and weave?

___ 1) no
___ 2) sometimes
___ 3) often

AU134- 6. Do you gulp drinks?

___ 1) no
___ 2) yes

AU136- 7. As a result of being drunk, has your thinking been fuzzy or unclear?

___ 1) no
___ 2) yes, but only for a few hours
___ 3) yes, for one or two days
___ 4) yes, for many days

AUI37- 8. Have you had a convulsion (fit) following a period of drinking?

___ 1) no
___ 2) once
___ 3) several times

AUI46- 9. Do you panic because you fear you may not have a drink when you need it?

___ 1) no
___ 2) yes

AUI47- 10. Do you sneak drinks or hide bottles?

___ 1) no
___ 2) yes

AUI54- 11. Do you lose control over what you do when you are drinking?

___ 1) no
___ 2) yes

AUI57- 12. As a result of drinking, have you seen things that were not there?

___ 1) no
___ 2) yes, once
___ 3) yes, several times

AUI58- 13. Have you had "shakes" when sobering up (hands trembling, shake inside, etc.) as a result of drinking?

___ 1) no
___ 2) yes, sometimes
___ 3) yes, almost

AUI67- 14. Do you usually have a bottle by your bedside?

___ 1) no
___ 2) yes

AUI68- 15. Do you drink throughout the day?

___ 1) no
___ 2) yes

AU175- 16. With respects to blackouts (loss of memory), I:

___ 1) have never had a blackout
___ 2) have had blackouts that last less than an hour
___ 3) have had blackouts that last for several hours
___ 4) have had blackouts that last for a day or more

AU178- 17. As a result of drinking have you heard "things" that were not there?

___ 1) no
___ 2) yes, once
___ 3) yes, several times

AU179- 18. Do you often have hangovers on Sunday or Monday mornings?

___ 1) no
___ 2) yes

AU189- 19. Do you almost constantly think about drinking and alcohol?

___ 1) no
___ 2) yes

AU196- 20. Do you tend to be physically harmful to other people when drinking?

___ 1) no
___ 2) yes

AU198- 21. Have you had weird and frightening sensations when drinking?

___ 1) no
___ 2) yes, perhaps once or twice
___ 3) yes, often

AU199- 22. As a result of drinking have you "felt things" crawling on you that were not there (bugs, spiders, etc.)?

___ 1) no
___ 2) once
___ 3) several times

AUI100- 23. Do you get physically sick (vomit, stomach cramps, etc.) as a result of drinking?

___ 1) no
___ 2) sometimes
___ 3) almost every time I drink

AUI110- 24. Do you carry a bottle with you or keep one close at hand?

___ 1) no
___ 2) some of the time
___ 3) most of the time

AUI117- 25. Have you ever attempted suicide when drinking?

___ 1) never
___ 2) once
___ 3) several times

AUI119- 26. As a result of drinking, have you ever had delirium tremens or DT's (seen, felt, or heard things not really there)?

___ 1) no
___ 2) yes, once
___ 3) several times

AUI120- 27. As a result of drinking have you felt your heart beating rapidly?

___ 1) no
___ 2) yes, once
___ 3) yes, several times

AUI121- 28. As a result of drinking have you felt overly hot and sweaty (feverish)?

___ 1) no
___ 2) yes, once
___ 3) yes, several times

AUI131- 29. Do you drink during your work day?

___ 1) no
___ 2) yes

APPENDIX

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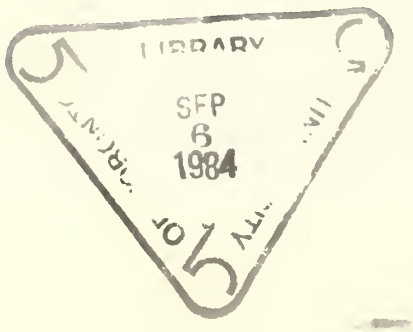

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